East Valley Astronomy Club

November Newsletter 1995

EVAC MEETING HIGHLIGHTS

Don Wrigley opened the meeting at 7:35 PM. There were 48 people in attendance including 2 guests and 1 new member.

Ted Heckens reported on the Sidewalk Astronomy Star Party (SP) at the Scottsdale Pavilions Shopping Center followed by Don and the Lost Dutchman State Park SP. He then went on to give details of the upcoming All-Arizona SP.

Upcoming Club Elections

Next order of business was nominations for next year's Club Officers. Further nominations will be accepted up to the voting on November 8th, the next meeting. Current nominees are:

Robert Kerwin for President
Tom Polakis for Vice-President
Sheri Cahn for Treasurer
Sam Herchak for Secretary
Steve O'Dwyer for Properties
Bob Kearney for Newsletter Editor

Nominations for Board of Directors are:

Paul Dickson	Kirk Keating
John Durham	Frank Kraljic
Ted Heckens	

Comets

Pierre Schwaar brought excellent photos taken with his 6" f/5 reflector at prime focus on hypered R. Gold 100 film of Comet de Vico that put on a great show in late September and early October. Tom Polakis addressed the "other" three comets and showed slides taken with a 15mm fish-eye lens and Fujichrome 1600 film. A 4-hour desert scene illuminated only by the night sky was amazing—long star trails in what looked like a daytime photo! *You will find this entire issue loaded with information on the current comets.*

Calendars

Paul Dickson and Sam Herchak spoke on various 1996 calendars that can be ordered through the Club at a discount. Last chance will be at the next meeting.

Featured Presentation

Dr. Ken Edgett from Arizona State University spoke on NASA's ambitious plans for exploring Mars over the next ten years. A total of eight spacecraft will be launched at the cost of one Mars Observer (which was probably lost because of a leaky propellant valve). The Mars Global Surveyor spacecraft is scheduled to be launched next November followed by a landing on the surface by Mars Pathfinder, hopefully on July 4, 1997. The Pathfinder will parachute to within a few hundred feet of the surface, then drop and land on "airbags!" Once these deflate, a microrover will be deployed to explore the nearby landscape. Ken was very knowledgeable on all the Mars missions as many people at ASU and the U of A are working on proposals and the instrumentation for these craft.

It was well past 9:30 PM before the group finished the baked treats from Sheri Cahn and Manfred Alber. Soda was provided again courtesy of Don.

UPCOMING CLUB EVENTS

EVAC Club Meeting, Nov. 8, 7:30 PM
SCC, Physical Sci. Bldg, Room PS 172

Deep Sky Star Party, Nov 18, Sunset 5:24 PM
Vekol Road Site

Local Star Party, Nov 25, Sunset 5:21 PM
Florence Junction Site

THE PRESIDENT'S CORNER
by Don Wrigley

It was two nights that I will not soon forget. Dark, clear skies; an unobstructed horizon with no streetlights visible anywhere; my first look at the California Nebula; comets galore, and a terrific meteor shower! Those who made the trip to this year's All-Arizona Star Party all seemed to agree that this was the best ever, in spite of the long ride over a too dusty road.

Two guests from the Netherlands, Paul and Heidi, made a special trip from Utah where they were vacationing just to attend. They were absolutely thrilled by our Arizona skies. Paul was particularly pleased with the views through Kevin Gill's 20" Obsession (where he spent a considerable amount of time), having confided to me that big Dobs are not a common sight in the Netherlands. Our thanks to "Ambassador" Gill for his patience and good will.

I too, was awed by the terrific sights visible through telescopes, both large and small. Surprisingly, I found myself mostly wandering about, gazing skyward at the spectacular Milky Way, and stopping by occasionally at Ted Heckens' "snack bar" to socialize (and eat!). All in all, I found it to be a most satisfying event. AJ Crayon has expressed an interest in holding next year's Messier Marathon at this site and I'm all for it. Maybe someone will log all 110 objects this time.

Many thanks go to those members who came out for the public star party at SCC last Friday. We had a good turnout of mostly young people, who I'm sure went home all aglow with excitement. A number of adults showed real interest in joining the Club also. New membership is part of what public star parties are about and I hope we will continue to have several each year.

We've become a big club with over 117 members, and I feel honored to have served as President. What is particularly pleasing is that we have such an active club, with about half the membership present at every meeting (even through the summer months). That sort of attendance tells me we are doing something right, and I think that something has to do with a lot of people going out of their way to make each meeting interesting, entertaining, and informative. The list of people I would personally thank is too long to mention here. I know you know who you are. You are what makes this Club the success it is. THANKS!

EVAC MEMBERSHIP RENEWALS

The upcoming election of Club Officers marks the beginning of another year for the East Vallley Astronomy Club. It's continued success depends on your support, a part of which is the annual membership dues. Hopefully you have found this year's meetings, newsletters, star parties, and other activities worth the modest $20.00 fee. If you intend to renew, please fill out the form at the back of the newsletter and send it with your check today. Putting it off will only create more work for the soon to be elected officers. Thanks so much for making 1995 a great year for this Club.

EXCEPTIONAL ALL-ARIZONA STAR PARTY
by Sam Herchak

Due to the efforts and prayers of EVAC President Don Wrigley, this year's All-Arizona Star Party was a resounding success. The new site proved to be ideal with lots of room, no lighting directly visible, and minimal sky glows from the metropolitan areas.

Observing Friday kicked off with 20 telescopes and an eerie knee-deep fog created by dust and the motionless air. The daytime high of 90 degrees Farenheit dropped to a chilly 45 after midnight when a southeast breeze increased transparency dramatically by clearing out the dust. The morning Zodiacal light stretched to the zenith!

Saturday was another cloudless day and 5 degrees warmer. By 5:00 PM, only 30 telescopes were present. Then like a scene out of the "Field of Dreams" movie, twilight brought several caravans and the number jumped to 50! Thanks to Tom Polakis and Frank Honer, word quickly spread to look for Comet Schwassman-Wachmann 3 at sunset near M62 in Scorpius. It had brightened beyond expectation to about 6.5 magnitude and displayed a classic tail over a degree long. Many observers also spotted the now not so spectacular Hale-Bopp that evening followed by Bradfield and de Vico in the predawn sky.

Saturday night remained warmer than the previous but transparency was also exceptional after midnight. An 18" Dobsonian clearly showed the Horsehead Nebula with just a UHC filter. Dawn Sunday was preceded by a spectacular Moonrise where the Earthlit portion was observed for 30 seconds atop a hill before the slender crescent crept out from behind. The Orionids were prolific both nights. These meteors were swift, often left luminous trains, and numbered about 30 per hour in the early morning hours.

Observers came mostly from Phoenix and Tucson but one couple planned their visit from the Netherlands to attend! Another drove down from Phoenix after seeing the short announcement in *Sky&Telescope* with only "Arizona City" for directions—somehow they found us! The approaching cold front and high winds didn't find us until mid-morning on Sunday. No one was disappointed.

Many thanks to Ray Farnsworth who farms the area and provided use of the site. Also to Don Wrigley who did most of the organizing and got the excellent weather through all his agonizing beforehand!

SIDEWALK ASTRONOMY
by Frank Kraljic

Those who have participated in a public star party know what I mean when I say there is nothing more pleasing than to have another individual experience, for the first time, what in some way we take for granted. The expression on a person's face as he or she gaze at the Moon through a telescope for the first time is timeless. The "Ooos" and "Ahhhs" are what make bringing the heavens down to Earth worthwhile. There is also a measure of satisfaction to the presenter every time another human being witnesses something that so few have attested to. You can imagine Galileo's impression when he stared at the Moon's textured surface through a telescope for the first time in human history; observing features on it that, at the time, were only thought to occur on the Earth. Think about it; these people are like the Galileo's of our time, demonstrating the human compassion to learn and explore.

In gratitude toward John Dobson, his work, and for his 80th birthday, on September 30th, several members and their telescopes paid an unexpected visit to the Scottsdale Pavilions Shopping Center on Indian Bend and Pima Roads to bring the stars to the public in a way never before done within this organization. Although there were only two telescopes (a three and four inch refractor owned by Ted Heckens and Silvio Jaconelli respectively) to my surprise, the night was a whopping success! I have to admit, with a lack of interest in an event like this, I had my doubts that the night was going to be at all that great. We started by setting up in front of the YC's Mongolian Restaurant facing south toward the classic car show in progress just a few hundred feet away after sunset. The Moon was a perfect first quarter with Jupiter several degrees west. Almost immediately a crowd of curious shoppers, car show enthusiasts, and employees from the surrounding restaurants wanted a chance to glimpse our Solar System in a way most have never done before. One woman in a Cadillac pulled up and asked "What are you looking at?" In response to our answer, she stepped on the gas, pulled over along the edge of the road, and ran over to our setup for a look!

The Oooos" and "Ahhhs" continued until around 10:00 PM when we decided to pack up the scopes and head home. By then, the crowds thinned out and the weekly car show had just about run out of gas. A good percentage of the people who came to observe were really enthusiastic about the whole event, and requested more information on ourselves and the Club. Although the intent was more toward letting the general public examine the sky through telescopes, the prospect of new members for the club was always open. We, the Sidewalk Astronomers Group of the East Valley Astronomy Club, left the Scottsdale Pavilions with great satisfaction and pride for a job well done. Perhaps next time, more people will partake in this awesome contribution to the public.

Editor's Note: Sidewalk Astronomy by EVAC is long overdue. Many thanks to Frank for making it a reality! The Tucson Amateur Astronomy Association is heavily involved in these types of projects and Dean Ketelsen, a past president, recently took Sidewalk Astronomy to another level. He set up at the U of A football stadium during a game—a 50,000 person star party! When's the next ASU home game Frank? Superbowl?

OBSERVATORY PROGRESS REPORT
by Bill Dellinges

I would like to update Club members regarding my observatory project. One of the main reasons for moving to Arizona was the opportunity of having an observatory in my backyard. Since my wife and I are pretty much moved into our house in Apache Junction, I felt ready to turn my attention to this enterprise. Last May I had a contractor pour a 12′ x 12′ slab and cement pier. The pier is 35″ high to match the Celestron C-14 tripod height and 18″ in diameter. It was poured into sonotube isolated from the floor. In July, I hired a carpenter to build the four 6′ high walls and an "outrigger" section of 4x4's to support the roof when it's rolled back. Though there is no roof at this writing (in August), the entire structure seems to be very sturdy. Because I chose 6′ high walls, the door entry clearance is only 5′ 4″ so watch your head! I've been painfully reminded of this fact several times already and will have to add some kind of rubber guard to prevent becoming a subject of "Rescue 911." A 1′ x 6′ slat on the south wall will allow me to point the telescope to the southern horizon.

Because of the summer heat, we have gotten up at 5:00 AM on three occasions to paint the building. I'm currently waiting on a machine shop to fabricate the wheel and track system on which the roof will rest. Next agenda will be to obtain bids for the roof construction. I need to look at the cost/weight aspects before deciding on a metal or wood roof. I hope to see the "Desert Sky Observatory" operational for Fall viewing. Club members are invited to drop by and take a look at the facility. Our home is two road miles north of US Highway 60 off of Mountainview Road (which you pass going to the Florence Junction observing site).

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Editor's Note: Bill informs me the observatory is now complete and operational. Perhaps we can get him to host a star party for the Club on one of our "local" dates.

SPACE TELESCOPE SCIENCE INSTITUTE NEWS

by Rob Smalley

A few months back our club newsletter contained a letter from Max Mulcher at the Space Telescope Science Institute regarding both educational outreach programs and amateur involvement in Space Telescope Science. I wrote to him on my own behalf but also mentioned our club. His reply letter to me contained the following information that I would like to share with you:

"The fate of our current and future programs for amateur astronomers is still uncertain. Our amateur program is one of many thins managed by our Office of Public Outreach (OPO). This office has been undergoing a re-organization, and a new office head was recently hired. She just arrived from California and is settling into her new job, so it may still be a while before our amateur program has some direction."

"So I don't have any 'official' news to report to you at this time. However, I will certainly hang on to your address and keep the East Valley Astronomy Club in mind. If we develop any formal programs that seem well suited to you and your group, I will contact you. In the meanwhile, I encourage you and your club to continue sharing the universe with others via star parties, etc. I do the same as often as I can, and I enjoy it as much as you do."

"As I have said, we haven't set up any formal outreach programs involving amateurs yet. But informally, I personally would be glad to contribute to your club's outreach efforts in any way I can. I have enclosed some materials that might be of interest to your club. I can send more of the lithographs if you'd like to be able to hand out HST images at your next star party. Let me know if you think of any other things I can do to assist your club."

"Regarding the involvement of amateur astronomers in HST-related research, this is another (somewhat separate) area that is currently in limbo. I have been suggesting a more aggressive program of getting amateurs involved in conducting supporting observa-tions for professional astronomers who are using HST. This might involve the monitoring of HST targets-of-opportunity (such as comets, variable stars, novae, supernovae, etc.) before, during and after the HST observations. Such observations are well within the capabilities of many amateur astronomers, and the resulting data can add significantly to a research project. If we get a formal program like that going, your club may be a good candidate for involvement. I don't know how much success I'll have in trying to promote such a program, but I'll let you know if we get things rolling."

Best Regards, Max Mulcher

I will bring the HST images and other materials Max sent to the next meeting for all to enjoy, and will contact him regarding obtaining additional educational materials for use by the club and to distribute to the public. If you desire, you may contact him at (410) 338-1321. His email address is mutchler@stsci.edu.

IOTA OBSERVATORY CATALOG

from the International Occultation Timing Association
accessed from http://www.sky.net/~robinson

The sizes and shapes of asteroids can be determined from timings of occultations of stars from two, or preferably more, locations. A good example of a sky-plane plot showing observations of an asteroidal occultation of the asteroid 216 Kleopatra (an unusual M-type) is shown on page 73 of the January 1992 issue of *Sky&Telescope*.

IOTA is trying to identify and measure coordinates of all observatories from which these events might be observed, since more observed chords give better resolution of the asteroid's shape. Portable telescopes not in observatories are included provided the precise location can be determined. Any observers who can find variable stars and obscure deep-sky objects can also locate asteroidal occultation target stars and contribute to this program. Email addresses of potential observers are useful, since email is the most efficient means of notifying large numbers of observers about last-minute updates in the predictions. These events can be predicted most accurately when the objects are in the same CCD field of view usually only a day or so before the event. Although intensified video, photoelectric, and CCD observations are preferred, visual observations are also needed to get a dense enough set of observations to trace the asteroid's profile. Visual timings can be made with simple equipment such as tape recorders and camcorders (essentially used as tape recorders). If you, or someone you know, can contribute to this effort, please contact me, so you can be informed of last minute updates by email when the update shows that the occultation might be visible in your region.

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A FOUR-COMET NIGHT

by Tom Polakis

It's hard to remember a dearth of bright interesting comets as pronounced as the one that lasted a full year after the famous impacts of Comet Shoemaker-Levy 9. So it came as welcome news in late July when Alan Hale and Tom Bopp discovered a comet that is showing every sign that it will dazzle us in 1997. As if this weren't enough, Australia's William Bradfield immediately followed this discovery by finding a naked-eye comet in the southern sky. Less than two months later, three Japanese amateurs picked up another extraordinary comet already at magnitude 7. And on September 21, periodic Comet Schwassmann-Wachmann 3 exhibited an outburst that increased its brightness from magnitude 12 to 8.

In a span of a couple months, the Comet Home Page (http://encke.jpl.nasa.gov/) on the World Wide Web had turned around for me from being a weekly curiosity to a compulsive daily visit. Each day, there were new descriptions and images to devour. The news and predictions at this site led to my most memorable night of comet observing. The night of September 23 would allow for observation of four comets, all interesting in their own way.

The evening started with an observation of Comet Schwassmann-Wachmann 3. As is often the case for comets near perihelion, it was less than well placed in the twilight. Every minute counted as the object was to set only a half hour after the end of astronomical twilight. After some struggling in finding the stars of Libra in the descending twilight, I picked up the comet in my 11x80mm finderscope. The view through a 13-inch telescope at 75x was a pleasant surprise. Along with a brilliant core, the comet displayed a bright tail extending nearly half the field of view. Increasing the magnification to 165x revealed the most detail. The coma was about 3′ (arcminutes) in diameter with a very concentrated, although not stellar concentration measuring over a half-arcminute across. The tail extended to the west-southwest for 20′, fanning slightly from the coma. A brighter streak that may have been a gas tail shone through the center of the fan. Backing off to 115x, the full extent of the tail appeared to be a half degree. Not a bad showing for a comet that was out of reach for an 8-inch scope a week earlier!

I observed Comet Hale-Bopp with equal anticipation. At an observing session six days earlier, it was plainly visible in a 4-inch refractor. Now, at the site where the comet was co-discovered by Tom Bopp, a group of us looked forward to a view in its dark southern Arizona sky. But something had happened to this comet. Its brightness had gone in the opposite direction from the earlier comet. Among a very rich star field in Sagittarius shone a comet which had faded by a full magnitude. It was now a challenge in a 13-inch, showing nothing more than a very diffuse coma with only the slightest hint of central concentration. The coma appeared to have shrunk from over 2′ across to just over 1′. The comet was still faintly visible in a nearby 4-inch, but it required a trained observing eye to pick out.

The most awaited observation, though, was going to have to wait until just before sunup, when Comet de Vico was to rise among the stars of Hydra. This comet was discovered independently by at least five observers when it was already brighter than magnitude 7. It was later found that it was a periodic comet first catalogued in 1846. The prognosis was for it to brighten to nearly 5th magnitude by early October. Comet de Vico didn't disappoint. It was an easy find in 9x25mm binoculars, and a fringe naked eye object. Through the telescope, the view was best at the lowest magnifications. The coma had an extent of 5′, with a brilliant central concentration, 1/2′ across. There were several levels of brightness away from this striking core. A Lumicon Swan Band filter greatly enhanced the gaseous coma by darkening the background sky considerably. Most remarkable about this comet though, was its awesome tail, the full extent of which was well over two degrees. Its width was only about 3′, becoming more ghostly as you scanned westward along its length. By rocking the tube of the telescope, I could suspect hints of the tail three full one-degree fields away from the coma. After a quick drawing and recording some notes in my logbook, I just gazed at the stunning sight until the next comet was to rise.

Comet Bradfield would be the most difficult of the four, rising only five minutes before the beginning of morning twilight. Although it was to gain more altitude in the next few weeks, it would also fade as it moved away from the Sun. Some clumsy scanning through the tail of Leo brought my scope to the right hopping star. And after some more looking through the murky horizon air, the comet apeared, like some final object in a Messier marathon. There's not much to say about this one, though. It was simply a faint haze, 2′ across, with only moderate central brightening. By the time it was getting out of the horizon haze, it was losing the battle with the advancing twilight. A quick drawing with zero field stars to worry about adding, and it was the end of a remarkable night of comet observing.

It may be a while before there are four interesting comets to observe in the same night. This night was a great way of piquing our interest for comet observing through 1997, when we hope to be treated with a real spectacle.

KEN NOVAK & COMPANY SHUTS DOWN

Word on the Internet is the Novak Company, long time supplier of quality ATM parts hasn't filled an order for quite a while. Unlike Coulter Optical, this apparently is not due to financial problems but the retirement of Mr. Novak. If anyone has more/better information, please advise.

THE DISCOVERY OF COMET HALE-BOPP

by Alan Hale

forwarded by Frank Honer off the World Wide Web

Ron Baalke has asked me to write this up in order to give readers an idea about whom the discoverers of Comet Hale-Bopp are, and how we managed to find it. Updated information about the comet is available at the following URL sites (and there are probably others that I'm missing):

http://www.halebopp.com [features regular firsthand contributions by both Tom Bopp and myself]
http://NewProducts.jpl.nasa.gov/comet/
http://wums.wustl.edu/~kronk/1995_o1.html
http://fly.hiwaay.net/~cwbol/astron/comet.html
http://encke.jpl.nasa.gov [contains information about many other comets in addition to Hale-Bopp]

Disclaimer: While I have not met Tom Bopp personally, I have had several phone conversations with him, and I feel like I know his side of the story well enough to tell it here. Obviously, I know myself and my side of the story better than I know his, and thus my stories below are longer than his, but this is not meant to slight his efforts in any way. Any serious errors or omissions in my descriptions of him or his discovery story belong to me.

Who Are The Discoverers?

I am a native New Mexican who has lived here most of my life, with the exception of four years in Maryland during the late 1970s and six years in California during the early and mid 1980s (including 2 1/2 years during which I worked at JPL in Pasadena). I am a professional astronomer who primarily specializes in the study of sunlike stars and the search for other planetary systems, although I have side interests in the fields of comets and near-Earth asteroids, and in the development of spaceflight. In addition, I have been an active amateur astronomer most of my life, concentrating primarily on the observation of comets, and have observed over 200 of these since I began doing so in 1970. I presently am head of an independent research and education organization, the Southwest Institute for Space Research, based in Cloudcroft, NM.

Tom Bopp lives in Glendale, Arizona, just outside Phoenix. He presently works as a shift supervisor in the parts department of a construction materials company in Phoenix. He is an active amateur astronomer and has been an enthusiastic observer of deep-sky objects for over 25 years, both in Arizona and in his native Ohio.

How Did We Find It?

Our discovery stories are remarkably similar to each other, and to top it off, our discoveries were almost simultaneous; they were certainly within a few minutes of each other. In the below stories I am using local time, but please note that, while both New Mexico and Arizona are in the Mountain time zone, New Mexico "springs forward" to daylight savings time, and Arizona doesn't.

During my normal study of comets it is my practice to observe comets once a week, on the average, and measure their brightnesses. On the night of July 22-23, the first clear night here in a week and a half, I had planned to observe two comets. I finished with the first one, periodic Comet Clark, shortly before midnight and had about an hour and a half to wait before the second one—periodic Comet d'Arrest—rose high enough in the east to get a good look at. I decided to pass the time by observing some deep-sky objects in Sagittarius, and when I turned my telescope (a Meade DS-16) to M70, I immediately noticed a fuzzy object in the field that hadn't been there when I had looked at M70 two weeks earlier. After verifying that I was indeed looking at M70 and not one of the many other globular clusters in that part of the sky, I checked the various deep-sky catalogues, then ran the comet-identification program at the IAU Central Bureau's computer in Cambridge, Massachusetts. I sent an email to Brian Marsden and Dan Green at the Central Bureau at that time informing them of a possible comet. Later when I had verified that the object had moved against the background stars, I sent them an additional email. I continued to follow the comet for a total of about 3 hours, until it set behind trees in the southwest, and then was able to email a detailed report complete with two positions.

That same night Tom Bopp had traveled to Vekol Ranch, a desert dark-sky site near Stanfield, Arizona, about 90 miles south of Phoenix along with several of his friends, a group that included Jim Stevens, Kevin Gill, Bernie Sanden, and a couple of others. They had planned to spend the night observing various deep-sky objects, and after awhile they were looking at some of the globular clusters in Sagittarius with, among other instruments, Stevens' home-built 17.5-inch Dobsonian reflector. Right around 11:00 PM they were looking at M70 and while Stevens was examining his star atlas to locate their next target, Bopp was watching through the eyepiece while the Earth's rotation carried M70 out of the field. At that time he noticed a fainter, fuzzy object coming into the field (the comet was located 15 arcminutes east-northeast of M70 that night). Bopp and his friends followed the object for the next hour and after seeing it move relative to the background stars, concluded that they had a comet. Bopp then drove back to his home in Glendale and sent a telegram to the Central Bureau informing them of his find.

IAU Circular 6187, announcing our discoveries, was issued about 12 hours later, and the rest is history.

LUNAR OCCULTATION OF COMET HALE-BOPP

forwarded by Frank Honer off the World Wide Web
http://newproducts.jpl.nasa.gov/comet/news4.html

The new and probably great comet C/1995 O1 (Hale-Bopp) will be occulted by the Moon on May 8th next year. The event will be seen from the north American continent except for Alaska and Canada. The age of the moon is 20.5 days and the brightness of the comet will be 7.5 magnitude at 4.5 AU from the Sun. This is presumably the first event of lunar occultations of comets to be observed in history.

The favorable phenomenon is the reappearance from the dark limb in the night. It will be seen from the west part of the United States, Mexico, Belize, Guatemala, Honduras, and San Salvador. Many famous observatories including Palomar, Kitt Peak, Lowell and Tonantzintla are located in this region. This is a very lucky chance for observations. The lunar occultation can reveal the fine structure of the comet. The duration of the event is about 0.1 second if the diameter is 100km. Therefore, high speed photometry will reveal the diameter of the nucleus and the brightness distribution of the coma and tail. Spectroscopic photometry will reveal the distribution of some materials in the comet

Current predictions using the latest orbital elements by Dan Green are:

SITE	DISAPPEAR	REAPPEAR
Lowell	0917.4 UT	1014.4 UT
Kitt Peak	0910.1 UT	1015.6 UT

NEWTONIAN CAD FREEWARE

from Roy Diffrient

EVAC's East Coast correspondent in Baltimore reports that a computer application for Newtownian telescope design and optimization is available for PC's at the cost of a long distance call. After inserting basic parameters like mirror sizes, focal length, etc. this app computes the 100% illuminated field size (in degrees and inches), light falloff at various field sizes (in percent and magnitude), baffle sizes and their locations, diagonal offsets, etc. It quickly gives results of changing focuser height, secondary size, tube diameter and such making it a great tool for the ATM. It was written by Stewart B. Rorer III of the New Jersey Astronomical Association and can be downloaded from their BBS (bulletin board system) at (908) 638-8593 (14,400, N, 8, 1) or the Stellafane BBS at (802) 885-3260 (9600, N, 8, 1). Perhaps a PC user in the Club (Russ?) would like to download this and donate a copy to the Club library.

OBSERVATIONS OF PERIODIC COMET DE VICO

from Bernie Sanden

9/24/95, 4:30 AM, 15 mi N of Cordes Junction (elev approx 4500') using 12.5" f/5.1 Newtonian at 50X and 11x80 tripod-mounted binoculars (mediocre seeing, good transparency):

Bright coma 3-4 arcminute with central "core" about 40-50 arcsecond diameter. Very distinctive greenish hue to coma obvious at 50X. Long, thin tail seems to eminate from point source and fan slightly the further away it is from head. Tail length about 2.5 degrees. Comet is barely naked eye, estimate magnitude 5.5—6.0.

10/01/95, 5:00 AM, Vekol Valley (elev approx 1800') using 12.5" f/5.1 at 50X and 7x50 binoculars (good seeing, very good transparency):

Head of comet within a degree of Regulus. Entire comet close to brightest region of zodiacal light, hindering contrast (and color) considerably. Visible with naked eye only fleetingly (Regulus seems to distract somewhat). Coma 5-7 arcmin with central "core" about 40-50 arcsec diameter. Binocular view suggests long, thin tail split along its length, the thinner section to the south (sections form perhaps a 5—7 degree angle). Overall brightness perhaps 5.5 mag.

All in all, I liked the view from 9/24 much more due to contrast with background sky. Beautiful in any event...I'll take it over no comet anytime!

Editor's Note: These observations weren't intended as an article but give those who missed it earlier a good idea of the show Comet de Vico put on. Watch it in the evening sky now—findercharts will be available at the next meeting.

ORBITAL ELEMENTS FOR DE VICO

from Sam Herchak

Those with planetarium programs might want to plot Comet de Vico on your own computer. Use these orbital elements and reference the article by Tom Polakis in the September EVAC newsletter if you have difficulties.

Perihelion Date=1995 October 6.02083
Perihelion Dist=0.6589136 AU
Eccentricity=0.9627363
Arg. of Perihelion=12.97805°
Ascending Node=79.62649°
Inclination=85.38238°

These Epoch 2000.0 elements were retrieved from the comet homepage on the WWW which uses the IAU Advisory Circulars for its information.

STELLAFANE '95

by Roy Diffrient

Like every previous Stellafane I've been to, this was a study in contrasts. Miserable one moment; just wonderful the next. Boring at times, yet extremely intense, involving and hectic at others. One minute I could be explaining digital setting circles to some novice, but the next could bring Richard Fienberg or Diane Lucas (I met both of them). It was awful. It was wonderful. You get the idea.

Friday night featured close range observations of lightning bolts. We were on top of Breezy Hill, a mini-mountain which was within the clouds. The clouds were just dumping rain. Thunderclap and lightning flash happened at the same instant for quite awhile it seemed. One of my fellow foolhardy observers had left an empty cup on top of his van. When the thunderstorm finally subsided, the cup was half full of rainwater. We made poor jokes with the unlucky concession operator in her metal trailer surrounded by her gas bottles, which heated our dinner of hot dogs. She was very glad to see the end of the storm!

Saturday morning was the telescope making competition. Thankfully it had stopped raining, and the sun was out and beaming, though still partly cloudy and hot. This meant steam. The judges were a study in contrasts in themselves. Some literally spent only 10 seconds at my scope, and others stayed for awhile and then came back later to explore and play. I must have explained it all 500 times.

The crowd wouldn't let me leave. I hardly got to any of the talks going on. I caught bits of two, but mostly I answered questions about my scope all day. Dee (my wife) helped out tremendously. After hearing me answer the same questions from so many, she could answer while I took a break. We barely had time for food or the porta-potties and had to walk away from someone to catch one of the last shuttle buses for dinner (the main concession tent is maybe a mile from Breezy Hill at the main camping area and buses run between the two areas).

The results were announced, as usual, at twilight in the ampitheater. There were half as many scopes in competition this year as last. My scope was judged first in craftsmanship and third in mechanical design. I'll send more complete results after I get all the other names from the video tape we made. There was a notable lack of super-innovative scopes in my opinion, but there were a few good ideas.

The sky finally, like all my previous Stellafanes, cleared up on Saturday night. Oh, was it gorgeous! The Milky Way was the only cloud up there! It was a real joy to finally observe under a dark sky with my telescope! For much of the evening I had the Crescent Nebula in view, with an average of maybe 10 people in line to see. Few had even heard of it. This is not the usual star party object. One who had previously seen it, John Davis of California, said that that was the best he had ever seen it. It definitely displayed the complete oval shape, rather than just the crescent. After the crowd had thinned around 2:00 AM, I had a chance to find the Cocoon Nebula. Now I know why I have not seen it before. It is faint! But also big and beautiful. The UHC filter helped more than the OIII, but less than the H-beta (I do have an H-beta, the Horsehead filter; just never used it on this object). Also found a lot of other stuff I'll tell you more about later. I found every object that I looked for. I stayed up 'til dawn, along with a few others who started out strangers but are good friends now. It was wonderful. It was addictive. I'll definitely be there next year with my scope. I'm hooked!

Editor's note: Roy and I have been "pen pals" for several years now and has been drafted by me as EVAC's "East Coast correspondent." A devoted ATM, he currently uses a beautiful homebuilt 18" Dobsonian. It's pictured in an article he wrote for Sky&Telescope on page 91 of the February 1994 issue.

ASTROFEST '95

from Dave Nash and the World Wide Web

Anyone go to Astrofest? Anyone pay the $100.00 fee to get in? And how was it?

Yes. No—I registered in advance. Wet, though more so when I was canoeing down the Kankakee than while actually observing.

In all seriousness, I went with about five other members of the University of Illinois Astronomical Society. We had a fair amount of equipment—I brought a 10" and a 4.25" reflector, as well as a pair of 70mm binoculars. Additionally, the club brought along its 12" home-built Dobsonian, two pairs of 80mm binoculars, and one member brought his 16" scope! Friday night was pretty clear and the field was busily observing away; only problem was some persistent low haze/clouds that dulled low objects. For example, a lot of people tried for Comet Hale-Bopp but I can't recall any visual sightings of it (though there were reports of someone who grabbed it with a CCD). My favorite activity was putting an OIII in my 4.25" RFT and exploring big nebulae like the Veil, Dumbbell, and Lagoon. I also got to introduce some club members to objects they hadn't seen before.

Other big treats were Jupiter and Saturn. In the 16", Saturn showed at least five (possibly six) moons as well as the sharp, nearly edge-on rings. Several bands were visible as well. I showed off a number of clusters—M11, the Double Cluster in Perseus, and the Pleiades—in the 70mms and the 4.25" RFT.

Skies were NOT pristine. There was severe haze and light cloudiness much of the time. M31 was just a little smudge to the naked eye, as opposed to the gigantic oval it is from genuinely dark skies. People who've followed this group

for a bit will recall that I posted some rather unusually good limiting magnitude values obtained from Merritt Reservoir, site of the Nebraska Star Party last July. Using the same area of sky that I used for the NSP, I determined a limit of +5.8. The limit for the NSP was +8.0 (no, that's not a typo—the skies there are exceptional). To me, Astrofest is more of a "social" star party—one where people get together and talk a lot about what they're doing, rather than get immersed in all-night observing sessions (though I'm sure a number of people did try that!). It was also a good time to introduce less experienced club members to the various objects visible in the later summer/early fall skies.

This was all on Friday night (Sept. 15). Saturday morning dawned cool and clear, and that's when I did my obligatory long, aimless hike through the nether regions of the 4H camp/park Astrofest is held at, as well as browsing the flea market and the aforementioned canoe trip down part of the Kankakee River. Saturday afternoon brought threatening weather; this plus a mechanical problem with the 12" club scope encouraged most of the UIAS to return home around sunset. Prior to midnight, the clouds broke up and reformed intermittently, but never for long enough to get in much of a view (maybe 15-20 minutes of basically clear weather at a shot). I packed up my scopes as precaution against possible rain and gave up for the night. Around midnight the clouds became essentially permanent and light rain happened during much of the rest of the night.

Notes from Roy Diffrient and the WWW: The organizers tacked on a $100.00 registration fee at the gate for those not preregistered! The registration deadline was August 12th, nearly a month before the event. How's that for promoting amateur astronomy? The catered meals at Astrofest were limited to the first 250 people who registered "well before" the August 12th deadline. Apparently they were the only meals available there, unless you count the "Northwest Suburban Astrodog Stand." I guess the other 500 or so had to either bring their own grub (sorry, no RV hookups and limited cooking fires), go off-site, or make do with just coffee and doughnuts on Saturday morning, which were included in the registration.

FROM *SKY&TELESCOPE* ONLINE

Kao Retires

An era in observational astronomy is ending. Early on September 29th, NASA's Kuiper Airborne Observatory, a C-141 transport equipped with a 36-inch telescope, touched down in darkness at Moffett Field, California, and thus ended its last scientific flight. The KAO first took to the skies 20 years ago in May 1975, carrying crew, scientists, and equipment to altitudes of up to 45,000 feet. That put it above virtually all the water vapor in Earth's atmosphere, which made the KAO a powerful tool for infrared astronomy. Equally important, it was totally portable in the broadest sense, able to fly to the Southern Hemisphere for studies of the galactic center, chase down a solar eclipse, or dash into the path of a rare planetary occultation. The KAO achieved much during its many hundreds of flights, including the discovery of Uranus' ring system, an atmosphere around Pluto, and the definitive detections of water last year during the crash of Comet Shoemaker-Levy 9 with Jupiter.

"The KAO has never been flying better," notes mission director Carl Gillespie. But the shutdown was deemed necessary so that NASA could afford its replacement, called SOFIA (Stratospheric Observatory For Infrared Astronomy). A cooperative program with German telescope builders, SOFIA will essentially be a 2.5-meter infrared telescope looking out a big hole in the side of a Boeing 747. The project should get a "new start" in NASA's fiscal 1996 budget and be flying by the year 2000. By not flying the KAO between now and then, NASA expects to save about $10 million.

"Clumps" Around Saturn?

This past week astronomers released their analysis of Hubble telescope images taken of Saturn last August, when the planet's rings appeared edge on to Earth. They were trying to confirm two new moonlets picked up in May, when the rings were also edge-on. But they were surprised to find clumps of material in elongated arcs, like pieces of a ring. Observer Philip Nicholson suggests that these could be clouds of debris from small satellites shattered during recent collisions. Nothing like this was seen by the Voyagers in 1980 and 1981, so conceivably the impacts happened in the years since. The ring "arcs" lie outside Saturn's A ring, near the irregular band known as the F ring. Nicholson will get another chance to check out the situation on November 21st, when the ring plane will pass through Earth a third time.

A Planet for 51 Pegasi

Astronomers are now fairly certain that a planet is orbiting 51 Pegasi, a Sun-like main-sequence star of spectral type G5 situated 42 light-years from Earth. Several observers have confirmed an announcement made by Michel Mayor and Didier Queloz of Geneva Observatory. They found that absorption lines in the star's spectrum shift in wavelength periodically, meaning that the star's velocity toward and away from Earth changes noticeably every 4.2 days. This fast, repetitive wobble implies that a planet is tugging on 51 Pegasi and lies only 7 million kilometers away from it—equal to just 1/20 of Earth's distance from the Sun. Orbiting so close to the star, this world should be heated to 1,000 degrees Celsius and it's likely a nearly molten ball of iron and rock. To create the observed wobble in 51 Peg's spectrum, the planet needs a mass at least half that of Jupiter. American astronomers David Latham and Robert Stefanik have also found evidence that a second planet circles this star much farther out—but they have yet to pin down a precise orbit or mass.

continued next page

51 Pegasi is magnitude 5.5 and easily visible in binoculars. It lies almost midway between Alpha and Beta Pegasi, the western pair of stars in the Great Square. By the way, despite all the news-media hoopla, this is not the first confirmed extra-solar planet; that prize goes to a pair two Earth-size bodies (and a possible Moon-size one) orbiting a pulsar in Virgo.

'98 ECLIPSE CRUISE

by Steve Coe
Saguaro Astronomy Club

I am just gathering some info on a cruise to the February 28, 1998 total solar eclipse. We are looking at the possibility of either chartering our own ship, probably from Holland American Line, leaving San Juan, Puerto Rico, with a stop at St. Thomas, plus another stop and then on to Aruba for the eclipse on that Thursday. This depends on the amount of hurricane damage to St. Thomas and so all that can be said right now is that there will be two stops en route to Aruba.

Another possibility is to reserve a block of cabins and have a large quantity of fun astronomers show up to occupy them. That would more than likely be on Princess or Carnival Lines, since they already travel to Aruba, the island in the best position for the centerline of the eclipse.

In either scenario, a deposit of $500 will be needed to confirm and hold your space on the cruise. The complete cruise package will range from $1,850 to $3,500 per person (which includes air fare from your departure city to San Juan). The category and location of your cabin on the ship will determine the exact price. Balance of payment due by December 1, 1997.

So, our travel agent for this rendezvous with darkness at noon is Barbara Philips at Regency Travel in Scottsdale, Arizona. She is not an astronomer, but is learning from me being around several hours already. Barbara can certainly answer any questions you might have concerning the cruise ships or accommodations. You may reach her at (602) 596-6787 (or 1-800-796-8024 outside AZ).

I know this seems very distant, but putting a group of this size together requires advance planning. I have no doubt that a winter eclipse in the Caribbean will attract large numbers of observers, so get on the phone to Barbara if you are interested in sailing with us.

After being an active Arizona astronomer for the past 20 years, I know for a fact that there are lots of interesting, exciting, knowledgeable and fun-loving folks around here. That is really the motivating factor about trying to get this together; an opportunity to meet and spend some time with a fun bunch under the Moon's shadow! Starting on my tan NOW!

BITS AND PIECES

Macintosh Users

A handy freeware utility, SetClock v3.6 will update your Mac's clock to within 1 second accuracy for the cost of a ten-second long distance call (the phone numbers used in previous versions don't work). It can be downloaded from Library-7 in the Mac OS/System Forum via Compuserve.

If you like to display lunar occultations or planetary events to a high degree of accuracy with the Voyager II application, be sure to set the precession epoch to "Auto Precess" as Voyager always precesses the planets to the **current** date! It's also important to have the planet scale set at "1X." You may still have problems with earlier versions—the latest I have is v2.0.6.

December EVAC Calendar

With the next Club meeting falling early in the month, the newsletter also goes out early. Therefore, the December EVAC calendar will be published with the December newsletter.

from the November *Desert Skies*
Newsletter of the Tucson Amateur Astronomy Assn.

MMTO Homepage

Web users interested in the Multiple Mirror Telescope Observatory (soon to become a single 6.5 meter telescope) can access a homepage which also has links to other astronomical subjects. Try it at:

http://sculptor.as.arizona.edu/foltz/www/mmmt.html.

ATM Newsgroup

Those with simple email capability can now access an Amateur Telescope Making Newsgroup to get advice from highly experienced ATMs. Be prepared as the newsgroup generates lots of email! Join by sending email to:

majordomo@efn.org

The body of the message should state: "subscribe ATM"

SKY&TELESCOPE RENEWALS

from Sheri Cahn

Sky Publishing has raised the club discount subscription rate for *Sky&Telescope* magazine to $24.00 per year effective immediately. This is still a significant savings over the normal $33.00 rate. You must obtain/renew your subscription though the Club to obtain the special rate. Please give me your renewal notice with your check to prevent mixups by Sky Publishing.

East Valley Astronomy Club

Membership Form

Please complete the information on the form and return to the address below along with a check payable to EVAC for $20.00 annual dues.

Sheri Cahn, EVAC Treasurer
4220 W. Northern #116
Phoenix, AZ 85051
246-4633

Name _____ ***Please***
Address _____
Zip _____ ***Print***
Phone # _____
E-mail address _____

( ) New ( ) Renewal ( ) Change of address

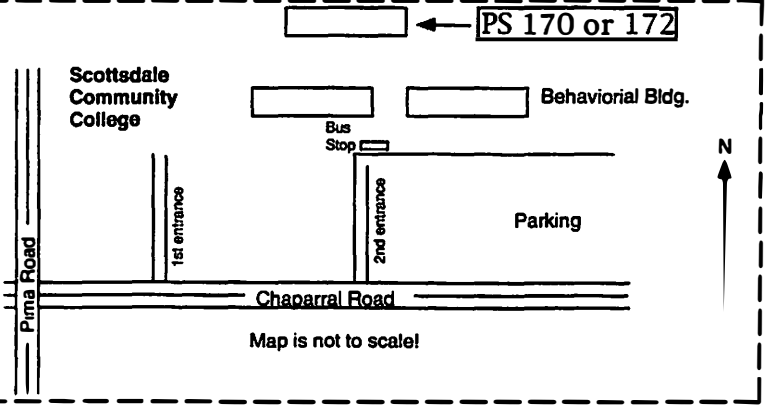
Major area(s) of interest:
( ) General observing
( ) Lunar observing
( ) Planetary observing
( ) Telescope Making
( ) Astrophotography
( ) Deep Sky
( ) Other _____

Enclosed:
___$20 annual
___$15 April - Dec.
___$10 July - Dec.
___$ 5 Sept.-Dec.

It is not necessary, but do you currently own astronomy equipment?
( ) Yes ( ) No
If yes, please describe. _____
How did you hear about the East Valley Astronomy Club? _____

CLIP AND SAVE

Monthly business meetings are on the Wednesday nearest to the full moon.



Valued EVAC member since 1/17/92!
Hope to see you at the meeting Nov. 8th

EAST VALLEY ASTRONOMY CLUB
Sam Herchak, Editor
145 S. Norfolk Circle
Mesa, AZ 85206-1123

EAST VALLEY ASTRONOMY CLUB

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MEMBERSHIP&SUBSCRIPTIONS: $20.00 annually. Reduced rates available to members for *Sky&Telescope* and *Astronomy*. Contact Sheri Cahn, 4220 W. Northern #116, Phoenix, AZ 85051, (602)-246-4633.

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: Published and mailed out the week before the monthly Club meeting. Send your thoughts and stories for publication to: Sam Herchak, 145 S. Norfolk Cir, Mesa, AZ 85206-1123, (602)-924-5981. Email to: 76627.3322@compuserve.com. Faxes welcome with prior notice.

CHANGE OF ADDRESS: Notify Bill Smith, 1663 S. Sycamore, Mesa, AZ 85202, (602)-831-1520. Email to: bsmithaz@aol.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 Steve O'Dwyer for complete details, (602)-926-2028.

BOOK DISCOUNTS: Great savings for members through Kalmbach and Sky Publishing Companies. Contact Sam Herchak, 145 S. Norfolk Cir, Mesa, AZ 85206-1123, (602)-924-5981.

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@gegpo7.geg.mot.com.