UPCOMING EVENTS

9-8  Friday:  First Quarter Moon
9-15 Friday:  Full Moon
9-16 Saturday:  Monthly meeting of the Society
9-21 Thursday:  Society Board of Directors Meeting, 7:00 p.m.
9-22 Friday:  Last Quarter Moon
         Autumnal Equinox at 7:20 p.m. MDT
9-23 Saturday:  Star Party at Twining Observatory site
9-29 Friday:  New Moon
9-30 Saturday:  Dark Sky Night at Gran Quivira
10-8  Sunday:  First Quarter Moon
10-14 Saturday:  Monthly meeting of the Society
         Full Moon

THIS MONTH’S MEETING

This month, we will hear Dr. Steve Gregory, of the UNM Physics and Astronomy Department, talk about Cosmic Voids: How Emptiness Tells Us about the Formation of the Universe. The meeting will be Saturday, Sept. 16, at 7:30 p.m. in Regener Hall on the UNM campus.

Dr. Gregory, whose research specialty is observational cosmology, is the co-discoverer of cosmic voids. He came to UNM in 1984, after teaching at Bowling Green University in Ohio and SUNY College in Oswego, NY. He received his B.S. in astronomy from the University of Illinois and his Ph.D. in astronomy from the University of Arizona.

LAST MONTH’S MEETING

Dr. Bel Campbell promised to tell us about “the dream and the reality” of the Hubble Space Telescope (HST), and her talk at our August meeting brought a heavy dose of reality. We’ve all heard and read a great deal about NASA’s multi-million-dollar orbiting observatory, but Dr. Campbell’s talk gave us a sobering insight into the politics surrounding this spacecraft. This was a refreshing, if saddening, look at the difference between NASA press releases and the reality facing the astronomers hoping to observe with this instrument.

If you missed this talk, you should know that there is a possibility that NASA will knowingly launch the Hubble Space Telescope – the focus of years of astronomers’ dreams – into an orbit doomed it to incineration in the Earth’s atmosphere within a year. This is the result of the shuttle’s reduced post-Challenger lift capacity and the extremely high levels of solar activity which have heated and expanded Earth’s atmosphere, increasing the drag encountered in low Earth orbits. So far, NASA officials have refused to commit themselves to delaying the HST's launch until solar activity declines.

As launch time, now scheduled for March, approaches, we may hear more about this problem. Meanwhile, we can hope for a less-intensive solar maximum.

THE AUGUST LUNAR ECLIPSE

The bad news is that we had clouds that blocked our view of almost the entire period of totality. The good news is that we still had a successful event, with lots of publicity, a good crowd, and the chance to meet many people who had questions about astronomy and about our Society.

The AAS, in cooperation with Albuquerque Parks and Recreation’s Arts in the Parks Program, sponsored an eclipse-watching party at Jeane Bellamah Park in the Northeast Heights. There was considerable publicity surrounding the first total lunar eclipse visible to us in seven years, and local media gave good coverage to our event. We were covered by both newspapers, all three TV news shows, and numerous radio stations. The AAS members who came out and set up telescopes were surrounded by onlookers full of questions, and we met many potential new members.

While we didn’t get to see much of the eclipse, Saturn obliged by peaking through the clouds to provide a spectacular view to many of the visitors. We had at least 300 people come out to join us at this event.
My thanks to all our members who came to help, and to the friendly folks at Albuquerque Parks and Recreation Arts in the Parks program who made this event possible. Also, our thanks go to the unnamed park neighbor who allowed us to plug our extension cords in at his house.

Dave Finley, President

SUMMARY OF THE AUGUST 24TH, 1989 BOARD MEETING

The treasury report was presented. The Society presently has just more than $4,200.00 in the observatory fund. Observatory plans are presently being worked on.

Quite a few future plans were discussed during this session. Art Jacobs talked about the upcoming Star Hill Inn observing session and a future educational program that members can participate in. Mike Fisk mentioned the upcoming Coronado Center Charity Bazaar on October 21st, 1989 for which our Society set up displays last year, and plans are being made to participate again this year. The Society is looking to have another Pot Luck Dinner close to the December holiday season.

Finally, it was noted that the University of New Mexico Campus Observatory is opening up again for the Friday evening public open houses starting September 1st, 1989.

MEMBERSHIP UPDATE

Our Society presently has 166 regular members, 59 family members, and 4 honorary members. The Society wishes to welcome the following members who have joined during the last two months. Thank you to those of you who have renewed your membership!

- Patricia Appel
- Robert G. Hill
- Jim Mildren
- Beverly Reno
- Warren Von Worley
- Michael Fontanarosa
- Homer C. McLaughlin
- Vance Sutherland
- Thomas Tagliatellirri
- Paula Jean Taylor
- Adrienne & Lori Koehler
- Matt & Patricia Kenson
- David K. Altbolli & Family
- Michael & Agnes Mayfield
- Marguerite Zoltowski

OCCULTATION UPDATE

Please note that the following events are "selections." If you find yourself with a free night to observe an occultation and you don't find an event listed here, please call Mac Morgan at 296-3983. There are events that are not thought popular for various reasons. Selected Total Lunar Occultations: (Please refer to the key for column headings.)

Day & Time  P Ref No V O Mag Snlt SA MA MZ CA Key

Gran Quivira
Zlich
Shooting Range Park
Zlich
Your Own Back Yard: (Call Mac for corrected time)

Sa923 015242 R L03188 8 6 8.5 36-11 67 38N

GRAZING OCCULTATION:

Day/Date MDT Nearest Town Star Magnitude Moon Altitude Moon Azimuth Percent Sunlit Cusp Angle Graze Rating

Tu918 0550 Espanola 7.0 68 degrees 240 degrees 78%, waning -0.4 deg. N Favorable
Th921 0055 Deming 6.9 21 " 70 " 58%, " 7.6 " N "

REMINDER FOR GRAN QUIVIRA OBSERVERS

There are no longer any accommodations at Gran Quivira, so observers going to Gran Quivira will have to provide their own shelter.
UNIVERSITY OF NEW MEXICO CAMPUS OBSERVATORY PUBLIC OPEN HOUSE

On September 1, UNM began its Friday night open houses at the campus observatory (Lomas and Yale Boulevards). The Albuquerque Astronomical Society provides volunteers to set up and man telescopes, present slide shows, and answer astronomical questions from the visiting public. Due to the recent interest and publicity surrounding the Voyager 2/Neptune encounter, the first night of the season saw record crowds. Estimates of the number of visitors ranged from 500 to more than 700.

Channel 13 Weatherperson and AAS member, Robin Marshment, broadcast the 10 o'clock weather news from inside the observatory dome, lending an air of extra excitement. AAS volunteers lending support to this very successful public education event included Paul Maestas (assistant observatory coordinator), Alan Trever, Mike Fisk, Ernie Koppel, Kevin Beverage, Jim Pickett, Van Sutherland, Bruce Levin, and Lee Mesibov. Dr. Bel Campbell, UNM Department of Astronomy and Physics and AAS member, provided faculty support, while Cecilia DeBlasi, UNM student, operated the 14-inch Astromak telescope.

If you would care to take part in providing much needed scientific education to the general public and be a campus observatory docent, please contact John Hockemeier at 293-5133 or Paul Maestas at 883-1086. You do not need to be an astronomical expert to participate. Your membership in AAS and general interest in astronomy are all the credentials you need.

OBSERVER'S NOTEBOOK

This segment of the newsletter will appear as space permits and will describe interesting astronomical events observed by society members. We invite the membership to contribute their observations.

In this first report I'm going to describe our efforts on chasing comet Brossen-Metcalf along with two meteor showers. I might have discussed the total lunar eclipse, but we all know how that went—the public was great, the weather was not.

I'll start with the Delta-Aquarid meteor shower which several of us observed on July 29 while we were searching for the comet. At the least, the shower was a pleasant surprise, as it is typically not an impressive shower. We apparently were present for the shower peak and observed a fair number (a count was not taken, but on the order of 20 per hour with at least one very high rate burst) with different colors and one which left a trail for >15 seconds. We finally located the comet which was disappointing since it was only a fuzzy spot appearing like an unresolved globular cluster. We were also treated (?) to a bright lightning display which luckily didn't reach our area. As a whole the night was a treat.

On the next weekend (July 5) we again located the comet and again it was not very impressive (other than it had moved on the order of 15 degrees in one week). However we again observed a significant number of meteors, as the Delta-Aquarid shower wound down and the Perseid shower was definitely under way. The time between the end of July and mid-August is apparently a very good time for continuous meteor observation—at least I was impressed.

The following weekend we were out again. This time we definitely had dual events in mind. The Perseid meteor shower was one day after its peak and we expected the comet to be a much better view. The meteor shower was very good, not because the peak rate was so high, but because of the number of bright (the kind that light up the ground) meteors and meteors which leave trails. Cal Currier counted on the order of 40 meteors between 2 and 3 AM. The comet now showed a tail, although it was faint.

The end of August and beginning of September has brought mostly clouds, providing very frustrating comet hunting conditions. Three successive nights have paid off in only 10 minutes of comet viewing. The 10 minutes, however, rate as spectacular (for a person impressed with comets). On September 4, Art Jacobs, Lee Mesibov and I got to look at the comet, with Lee's 13-inch Dobsonian, as it came over the horizon (at 4:30AM!!!). The comet now has better than a 2 degree tail, around 5th magnitude and with an interesting coma around the nucleus. Even in the binoculars the view was impressive. If you're into comets and get this newsletter before September 11, get out and see this one. You'll find the location in the September Sky & Telescope, page 288 or call me. Be prepared for cold and humid weather though. Wear the heavy gear!

If you want to contribute an observation contact Steve Williams (898-4885) or myself (293-7994).

George Dulleck

ASTRONOMICAL CLASSIFIEDS

6 inch Meade Newtonian reflector, 30-inch barrel; equipped with tracking motor; attachments for a 35 mm camera, $400. Contact Bruce Bachelor (836-0327) or David Montano (836-2030).

Celestron Telescope for sale: 4.5-inch f/7.9 Newtonian, 6 months old, $400. Call Shirley Fox at 892-8258.
### October 1989 Lunar Almanac

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#### Albuquerque, NM
- **Time Zone:** MDT
- **Latitude:** 35.08
- **Longitude:** 106.65

**Notes:**
- **MR** = Moonrise, upper limb on horizon.
- **TR** = Transit, moon is due south and also highest in the sky.
- **MD** = Moonset, upper limb on horizon.
- Times are rounded to nearest minute.

**RA** = Azimuth of rising moon.

**TA** = Altitude of moon at transit.

**SA** = Azimuth of setting moon.

Moon phases are shown each day at 12:00 noon in the time zone indicated.

Calendar by Ray Sterner
Johns Hopkins Applied Physics Lab.
Laurel, MD 20707

### October 1989 Solar Almanac

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#### Albuquerque, NM
- **Time Zone:** MDT
- **Latitude:** 35.08
- **Longitude:** 106.65

**Notes:**
- **MA** = Morning astronomical twilight, sun is at ~18 degrees altitude.
- **MN** = Morning nautical twilight, sun is at ~12 degrees altitude.
- **MC** = Morning civil twilight, sun is at ~6 degrees altitude.
- **SR** = Sunrise, upper limb on horizon.
- **TR** = Transit, sun is due south and also highest in the sky.
- **SS** = Sunset, upper limb on horizon.
- **EC** = Evening civil twilight, sun is at ~6 degrees altitude.
- **EN** = Evening nautical twilight, sun is at ~12 degrees altitude.
- **EA** = Evening astronomical twilight, sun is at ~18 degrees altitude.
- Times are rounded to nearest minute.

**RA** = Azimuth of rising sun.

**TA** = Altitude of sun at transit.

**SA** = Azimuth of setting sun.

Altitudes and azimuths are in degrees.

Calendar by Ray Sterner
Johns Hopkins Applied Physics Lab.
Laurel, MD 20707
EL CIELO ESTRELLADO

Cepheus Revisited

If you were to poll 100 amateur astronomers with regard to a favorite constellation, Cepheus would probably not receive a single vote. The basic star pattern is distinctive but not spectacular. Moreover, Cepheus does not contain any object on Messier's famous list. Numerous bright NGC objects plus many interesting multiple and variable stars populate this constellation, however. Items described in the newsletter for September 1986 include the ancient open cluster NGC 188, the planetary nebula NGC 40, the ruddy variable Nu (a) Cephei ("Herschel's Garnet Star"), the face-on spiral galaxy NGC 6846 (site of several recorded supernovae in this century), and the large region of light and dark nebulosity known as IC 1598. In fact, these deep sky splendors are only the "tip of the iceberg." The mythological king of Ethiopia possesses many lesser-known jewels as well. Hence, Cepheus is worth another visit this fall.

The plane of the Milky Way slips through the southeastern corner of Cepheus. As one might expect, this region contains numerous galactic objects such as open star clusters and planetary nebulae. In order of right ascension, the list of star clusters includes NGC 7235 (2000.0 Coordinates: R.A. 22 hr. 12.6', 57° 17''), NGC 7281 (22 hr. 20.4', 56° 05''), NGC 7281 (22 hr. 24.7', 57° 50''), NGC 7380 (22 hr. 47.0', 58° 06''), and NGC 7419 (22 hr. 54.3', 60° 50'). NGC 7510 (23 hr. 11.5', 60° 34') is also listed. NGC 7380 is a distant (3500 parsecs) group of around 40 stars in a diameter of 12'. This cluster may be part of the Cap OB1 association. NGC 7510 is a richer and more compact cluster of some 60 stars. At 3180 parsecs, this object is nearly as distant as NGC 7380. A fair amount of effort may be required to separate some of the less rich clusters from the surrounding Milky Way star fields. The planetary nebula NGC 7354 (22 hr. 40.4', 61° 17') lies west and a little north of NGC 7419. This object is approximately 20" in angular diameter and its photographic magnitude is 12.9. NGC 7354 is listed as a Vorontsov-Velyaminov type 3+4b planetary, indicating complex ring-like structure. Can you see any of this detail? The Southwest of NGC 7310 is IC 1470. Sky Chart 2000.0 and Burnham's Celestial Handbook identify IC 1470 as a planetary nebula; however, more modern sources (e.g., Uranometria 2000.0, Sky Chart 2000.0, Vol. 2 and NGC 2000.0) suggest that this object is probably a tiny emission nebula. In any case, faint IC 1470 will provide an observing challenge.

While exploring the corner of Cepheus near the galactic plane, you may want to check up on Delta (δ) Cep, the prototypical Cepheid variable. With two convenient reference stars (Zeta and Epsilon Cep) in the same low-power binocular or finderscope field, this is a perfect place to hone your variable star observing skills. Delta varies in brightness between mag. 3.6 and mag. 4.3 with a period of 5.37 days. Zeta (ζ) and Epsilon (ε) Cep shine at mag. 3.4 and 4.2, respectively. From the heliocentric elements given in Sky Catalogue 2000.0, Vol. 1, 1982, geocentric predictions for maximum light are as follows: Sept. 9, 22 hr. 22' (UT); Sept. 15, 7 hr. 10'; Sept. 20, 15 hr. 57'; Sept. 26, 0 hr. 45'; Oct. 1, 19; Oct. 6, 18 hr. 19'; Oct. 12, 3 hr. 07'; Oct. 17, 11 hr. 55'; Oct. 22, 20 hr. 42'; Oct. 28, 5 hr. 30'; Nov. 2, 14 hr. 17'; Nov. 7, 23 hr. 05'; Nov. 13, 7 hr. 53'; Nov. 18, 16 hr. 41'; Nov. 24, 1 hr. 28'; Nov. 29, 10 hr. 16'. The light curve for Delta Cep is quite easy and the rise to maximum requires only a day and a half, while the fall to minimum takes nearly four days. South of Delta Cep is the unusual multiple star Krueger 60 (not shown on the accompanying finder chart). The main pair of stars (presently separated by about 3") form a rapid binary system with an orbital period of 44.5 years. Only 13 light years distant, this system is one of the nearest visual binaries. The main components, 60A and 60B, are both low-luminosity red dwarf stars (mag. 9.8 and mag. 11.4, respectively). The fainter component is also a well-known "flare star." A detailed finder chart for Krueger 60 is provided in Burnham's Celestial Handbook, Vol. 1, p. 600.

Residing only eight degrees from the celestial pole, the fine Algol-type eclipsing binary U Cephei (1 hr. 02.3', 81° 53') is visible at any time of the year. Similar to U Sagittae (described in last month's article), this system contains a bright primary component that is periodically eclipsed (totally) by a fainter companion. At eclipse, U Cep fades from visual magnitude 6.75 to a minimum of magnitude 8.24. A fall to minimum requires four hours and the eclipse lasts about two hours. Predicted times for upcoming eclipses are as follows: Sept. 10, 13 hr. 43'; Sept. 13, 1 hr. 33'; Sept. 15, 13 hr. 23'; Sept. 18, 1 hr. 13'; Sept. 20, 13 hr. 02'; Sept. 23, 0 hr. 52'; Sept. 25, 12 hr. 42'; Sept. 28, 0 hr. 32'; Oct. 30, 12 hr. 22'; Oct. 3, 0 hr. 12'; Oct. 5, 12 hr. 01'; Oct. 7, 11 hr. 41'; Oct. 12, 23 hr. 31'; Oct. 15, 11 hr. 21'; Oct. 17, 23 hr. 11'; Oct. 20, 1 hr. 01'; Oct. 22, 22 hr. 50'; Oct. 25, 10 hr. 40'. All events are given in Universal time (UT).

Wayne H. Trott

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DUES: Please note the expiration date on your mailing label. If you are due for membership renewal, you may send your dues by mail to our newsletter return address with your check written out to the Albuquerque Astronomical Society or give your check to the Treasurer at the next meeting. Please include the membership application that is sent with your newsletter when it is time to renew. Discount subscriptions to Sky and Telescope, Astronomy, Odyssey, Deep Sky, and Telescope Making magazines, and books through Sky Publishing Corporation are available at a reduced cost when purchased by Albuquerque Astronomical Society members through our Society. Include any of the above magazine renewal mailers and subscription payment as part of your renewal check. Membership dues are $10.00 per year and $2.00 per additional family member. Membership Packets cost $1.75 each for new members or renewing members without the Packet. Contact the Treasurer for more information.

SOCIETY COMPUTER BULLETIN BOARD SERVICE: An Astronomy BBS is available for Albuquerque Astronomical Society members for discussion, announcements, and transfer of files and newsletter articles in our software library. The BBS is available 24 hours a day at 255-3623. Set your computer's modem to 8 N 1 (8 data bits, no parity, and 1 stop bit). Contact the Software Coordinator for more information.

NEWSLETTER ARTICLES: Personal astronomical classified advertisements and articles can be submitted within 12 days after the latest Society meeting in order to make it into the next newsletter. The Newsletter Editor reserves the right to include and/or edit any article or personal classified advertisement. Computer files in ASCII format (WordStar non-document mode) are preferred. Contact the Newsletter Editor for more information.

CHANGE OF ADDRESS: Note that the Sidereal Times is mailed out at non-profit bulk rate. The newsletter will not be forwarded to your new address if you move! Please provide the Secretary with your new mailing address to insure that you receive your newsletter.

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