"PARDON ME!—BUT CAN YOU TELL ME IF MY TELESCOPE IS WORKING?"

This month's guest speaker will feature New Mexico's renowned comet hunter Howard Brewington.

Howard originally hails from South Carolina where he has the distinction of being the only person to have discovered a comet from that state. The comet was named Comet Aarseth-Brewington, a shared name with co-discoverer and amateur astronomer Knut Aarseth from Norway—the only comet discovered from that country. Howard was bit by the excitement of that first comet discovery and convinced his wife Trudy to move to more fertile comet hunting grounds—the mountains of southern New Mexico, just east of Cloudcroft. Over the last several years, Howard has discovered three more comets from his observatory in New Mexico. The first comet that Howard discovered from New Mexico (his second comet discovery) was the rediscovery of a long lost periodic comet that famous comet hunter Joel Hastings Metcalf discovered almost 90 years ago. The comet was appropriately named Comet Metcalf-Brewington.

What kind of instrument did Howard use to make these discoveries? Well, none other than a fast focal ratio Newtonian Alt-Azimuth telescope that he built himself. Howard ground, polished, and figured his own 16 inch diameter mirror with a 70.4 inch focal length. Over the years, Howard has done everything he can to make the endeavor of comet hunting enjoyable.

Please note: TAAS offers a Safety Escort Service to those attending monthly meetings on the UNM campus. Please contact the President or any board member during social hour after the meeting if you wish assistance, and a club member will happily accompany you to your car.

UPCOMING EVENTS

SEPTEMBER

9-1 Friday: Alpha Aurigids meteor shower.
9-2 Saturday: First quarter moon.
9-3 Sunday: Comet Reinmuth 1 at perihelion.
9-4 Monday: Labor Day.
9-7 Thursday: Board Meeting; Pot Luck/Awards committees.
9-8 Friday: Full moon.
9-9 Saturday: Mercury at greatest eastern elongation.
9-14 Thursday: Saturn at opposition.
9-16 Saturday: John Dobson's Birthday.
9-23 Saturday: Autumnal equinox.
9-28 Thursday: Observatory committee meets.
9-29 Friday: Alvarado Elem. School Star Party @ 7:00 p.m.—call Lisa Wood to confirm at 344-8308.
9-30 Saturday: GNTO Observing. Call Bill Tondreau to confirm at 263-5949.

OCTOBER

10-1 Sunday: First quarter moon.
10-3 Tuesday: Neptune stationary.
10-4 Wednesday: Uranus stationary.
10-5 Thursday: Board meeting. Officers nomination committee.
10-6 Friday: Comet Jackson-Neujmin at perihelion.
10-7 Saturday: Regular meeting of TAAS.
10-8 Sunday: Full moon.
10-9 Monday: Comet Longmore at perihelion.
10-13 Friday: Valencia Campus Star Party/Campout. See article.
10-16 Monday: Mercury stationary.
10-20 Friday: Mercury at greatest western elongation.
10-21 Saturday: Mount Washington Star Party/Campout. See article.
10-24 Tuesday: Orionid meteor shower.
10-26 Thursday: Observatory committee meets.
10-28 Saturday: GNTO Observing. Call Bill Tondreau to confirm @ 263-5949.
10-30 Monday: First quarter moon.

(GNTO: The General Nathan Twining Observatory)
(TAAS: The Albuquerque Astronomical Society)
hunting easier so he can view as much of the sky as possible during the course of an evening and to be able to see the faintest objects possible. In order to do that, Howard has been working on perfecting the performance of his telescope as an instrument and for the optical system to work optimally with his eye.

Howard will be sharing his experiences and knowledge about telescope making and what we can do to improve the performance of our telescopes that we buy or build ourselves. Whether you own a telescope or are planning to buy or build one, this is one interesting presentation you do not want to miss! Howard has been a guest speaker on two previous occasions—once shortly after discovering his first comet from New Mexico and on another occasion to talk about astrophotography. Those of us who attended those meetings were filled with Howard's enthusiasm for astronomy. For those Amateur Telescope Makers interested in a telescope making shareware computer program, please bring along a blank 1.44 megabyte (3-1/2") floppy diskette to exchange with Howard.

Howard has written two astronomy related articles this year. The article about keeping your computer warm in cold observing conditions in a home built temperature controlled computer box was titled "Toasty Data" and was published in the April 1995 issue of Sky & Telescope. His article titled "The Future of Comet Hunting" was published in the Summer 1995 issue of CCD Astronomy magazine. Famous comet hunter, author, and Sky & Telescope magazine writer David Levy wrote an article about Howard and Trudy Brewington titled "Consumed by Comets" in his "Star Trails" feature in the June 1995 issue of Sky & Telescope.

In addition to having discovered four comets (for which the discoverer has his or her name associated to it for human eternity) Howard also had asteroid 5799 named in his honor, in recognition of his observational work in comet searches, by asteroid and comet searchers Carolyn Shoemaker, of Comet P Shoemaker-Levy 9 fame that impacted Jupiter in July 1994.

See you at the Saturday night meeting at 7:00 on September 9th at Regener Hall on the main campus of the University of New Mexico (see map on back page).

Bruce Levin—Board Member
THE AUGUST MEETING

Vice President Lisa Wood presided over the meeting. Guest Speaker Dave Finley, former TAAS president and current Public Information Officer at the VLA, gave an information packed presentation covering many subjects. Here's a summary:

The Enchanted Skies Star Party is coming up this September 21 to 24, with numerous seminars and vendors. There will be a dark-dark sky night on a ranch 20 miles outside of Socorro, complete with chuck-wagon dinner.

Comet Hale-Bopp is currently at magnitude 10.5 while still beyond the orbit of Jupiter. This 100 mile wide, 3000 year period comet is expected to reach an incredible magnitude of -1.7 at closest approach in early 1997, possibly the brightest comet in 200 years. For now, even small scopes can find this object coming up out of the Teapot spout during mid September.

The VLBA (Very Long Baseline Array) is a series of radio antennas, including the VLA, extending from Hawaii to the Virgin Islands. This 5000 mile baseline array gives the greatest resolving power of any astronomical instrument on Earth. Resolutions are measured in thousandths of an arc second, up to 300 times better than Hubble. Compare this to the one arc second optical resolution which would make any of us happy.

A remarkable radio analysis of M106 shows clear evidence of a 40,000,000 solar mass black hole at the center of this galaxy. The high resolving power of the VLA allows such precise position and velocity measurements of the Keplerian motion around the massive core that it is possible to use well known mathematical techniques to directly calculate the size and mass of the central object, without having to depend on theoretical models. Exciting new ROSAT x-ray images show two possible objects ejected from the central mass. These objects, apparently associated with M106, exhibit quasar-like, strongly red-shifted spectra, and may be the first observations of non-cosmological red shift. Quasars may be a lot closer than previously thought if their red shifts are not based on their recession speed (and therefore their distance). The cause of the anomalous red shifts remains unknown.

It turns out we have a confirmed Black Hole in our own galactic neighborhood, only 10,000 light years away in Scorpius. This binary system consists of a solar type star orbiting a massive object. By analyzing the corkscrew shape
of the jets ejected from this object, VLA studies suggested a binary system with an orbit of three days. Luckily, the system is oriented so the solar companion is eclipsed by the more massive object, giving an optical confirmation of the orbit. Orbital calculations yield a mass of at least 4 solar masses for the central object, putting it well above the three solar masses required to make a black hole. Mass is pulled away from the solar star into the accretion disc of the black hole, and ultimately propelled away in two jets at 92% of the speed of light. The energies involved must be enormous.

The Galileo spacecraft has released its atmospheric probe. During its entry this coming December, the VLA will receive signals directly from the probe. Doppler analysis will provide information about winds in Jupiter's upper layers. The VLA is currently analyzing some unexpected strengthening of the synchrotron radiation surrounding Jupiter as a result of the SL9 impacts.

The VLA has recently been called "the most productive observatory of the last decade." This is especially remarkable when you consider that this 1960's design is still using 1970's electronics. Current "VLA 2000" plans call for upgrading the system. Modern electronics would increase its sensitivity and frequency coverage. Replacing the current waveguide links with fiber optics would boost the system bandwidth from 100 MHz to 2,000 MHz, and allow the addition of several new antennas throughout New Mexico and Arizona to fill in the current "resolution gap" between very large and very small objects. New computers would crunch data faster. The hope for addition of a Japanese low orbit space antenna, and a Russian high orbit antenna would make the "Space VLBI" system a reality, with a resolution of a few millionths of an arc second. If funded, these improvements would give us the ability to examine the universe a 100 times faster and with 50 times more resolution than now. Who knows what fabulous discoveries would follow.

For the new "show and tell" section, Lisa Wood demonstrated her turquoise colored Coulier 10", artfully embellished with a lizard motif. A rich selection of cookies and an impromptu peek at Jupiter's moons capped off another fine meeting.

Bill Tondreau

THE PRESIDENT'S UPDATE

"When will we have the club scope working again?" This is the question a fellow member asked me recently while I was standing in the shadow of the maintenance barn at the VLA.

I'm sure this question is on the minds of many. It is the question I've been trying to answer ever since the day several hundred spots were discovered on the metallic coating applied by CVL Laser.

Although I've answered this question a couple of times before, I've always answered it prematurely. At this point in time, I can tell you this: the 16'' C type mirror was inspected by Steve Dodds of Nova Optical and found to be approximately 1/2 wave at best due to a dielectrically applied coating of glass.

The application of glass (whose purpose is a mystery to all concerned) had to be ground off and the mirror was refired. As of Monday August 21, the newly refired mirror was sent to QSP for the application of an enhanced coating.

A representative of QSP said that their turnaround time is approximately a month. Experience has taught us that a guess is as good as any date. What I mean is that our mirror may have been shipped back by the time you are reading this or we may be waiting another 3 to 4 weeks. Stay tuned for more episodes of "As The Mirror Turns."

On other matters...our field trip to the VLA was a huge success. Dave Finley and Jon Spargo once again gave up a day off from work to personally lead a VIP tour of the world's most prolific observatory. Thanks guys. The members of TAAS are truly grateful for their time and energy you put into such a Grand Tour.

Dave and I counted around 50 people. The walking tour up and into the radio telescope in the maintenance barn was (as it was last year) a big hit. There were so many people that the tour had to be broken up into three groups!

The camping trip that was not originally scheduled but added as the date drew near, was not as successful. It was fun and an adventure, but clouds are not much fun as a clear dark night at 10,000 feet when you have a telescope with you.

Our next camping trip is just around the corner and should take place just after the end of our monsoon. For details, see the article entitled "LAS ESTRELLAS SOBRE EL MALPAIS (THE STARS OVER THE BADLANDS)" in this issue. I look forward to seeing you there.

George Pellegrino, President

SUMMARY OF AUGUST BOARD MEETING

After George Pellegrino called the meeting to order, Heather Vogel summarized the previous meeting minutes. Gordon Pogue gave an account of the treasury: $355.50 in Education, $2437.46 in Observatory and $1936.19 in General funds.

Jay Harden reported on the membership. Many members are continuing to renew with TAAS as well as a number of new members. Jay has also proposed taking several of the new members to Twinning for a night of observing.

Gordon Pogue updated the board on Twinning Observatory. The mirror will be refired and aluminized by Nova Optical. It will take approximately 3 months for the process to be completed, making the earliest possible date for the observatory to be operational in November. The telescope mounting and guide scope are nearly completed. The security upgrade for the building has been completed and the current project is a dome drive system. Finally, Mike Pendley has obtained a person willing to level the site at GNT0 for us.

The Logo committee has reported that both our former name and current as well as the logo have now been formally registered with the State of New Mexico. They are currently creating an amendment to

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assist in the control and use of these. Areas addressed in the amendment include use of the name and/or logo on: business cards, stationary, advertisements, and sponsorships.

Several issues of old business were brought before the Board. The new membership applications are available, and any old applications should be destroyed. Mike has nearly completed the telescope to be raffled. A committee has been formed to develop a policy for the raffle. The El Malpais star party will be September 16. Plans are currently under way for the November meeting to be held at the New Mexico Museum of Natural History in conjunction with the New Mexico Academy of Science. Finally Mike will have a mirror grinding class this fall for interested parties.

Moving on to new business: There is the possibility of a commercial star party coming to New Mexico this fall. TAAS is considering hosting a free public star party at that time. John Dobson's birthday is September 14; we will be sending him a large card with members' signatures and personal letters that members may wish to write; contact Carl Frisch for details. The mailing of our monthly newsletter may be changing. Currently members volunteer 20 hours a month to send the newsletters. The Business Shop has proposed to do the bulk mailing for us at a reasonable price. We will try this approach for September's newsletter and see what happens. Brock has requested a star party for UNM's Valencia campus on October 13. Last, Bruce Levin and Ellen Gates have suggested a slogan and also the creation of a WWW Page for the organization.

After newsletter articles were assigned, the meeting was adjourned.

PARTY HARDY!!!

Our faithful docents are invited to dust off their scopes for the upcoming school year. Our first School Star Party is scheduled for 7:00 p.m., Friday, September 26th at Alvarado Elementary School. We have received permission to borrow the APS portable planetarium, and if we can get the Grand Dame in operational order, this star party will be offering both telescope viewing and some short planetarium shows, as well. All TAAS members are invited to drop by and enjoy the skies and shows with the docents. No telescope is required!!! Alvarado Elementary School in the North Valley can be reached by heading south on 4th Street from the intersection at Osuna and 4th, and turning west on Solar Road (near Sadie's). Wind through a residential area and the school is about a quarter of a mile down on the left.

THEY DON'T CALL IT CLOUDCROFT FOR NOTHING

More than 25 members of the Society showed up on June 24th to enjoy tours of the Apache Point Observatory and National Solar Observatory. While the observing was not the best due to clouds, the following morning rounded off the event with a museum tour and terrific IMAX flick about the Hubble Space Telescope at Alamogordo's Space and Science Center. I never thought so many nuts and bolts could bring a tear to my eye! I personally think TAAS's field trips are great fun—so please join us for our next one!

Lisa Wood

LAS ESTRELLAS SOBRE EL MALPAIS (THE STARS OVER THE BADLANDS)

The members of T.A.A.S. and their friends have an opportunity to sample the wonderful observing conditions as guests of the rangers that run the visitors center adjacent to the El Malpais National Conservation Area. In exchange for putting on a public star party, the rangers will allow us to set up camp near our telescopes and spend the night under the stars in their parking lot.

This event will not be unlike the "public" star party/camping trips we've had at Chaco Canyon. At Chaco, the telescopes outnumbered the visitors about an hour after nightfall and by 10 or 11 p.m., the "public" had gone to bed.

If you plan on joining us, here's what you need to know:

*Date: Saturday, September 16

*Time: Try to arrive about an hour or more before sunset.

*Place: El Malpais Visitors center.

*To get there: Take I-40 west toward Grants. Just before you get to Grants, look for the exit for 117 south. Stay on 117 south for about 15 miles and look for the sign to the visitors center.

*What to bring: The usual camping stuff if you plan to camp; warm clothes; stuff to drink; hiking boots or shoes (to help protect your feet from the critters and such); etc.

*What to expect: A parking lot to set up in; bathrooms; camping near (or next to?) telescopes; *NO open fires; Very dark skies and other people with telescopes for you to enjoy if you don't have one.

If there are any changes I'll post them on the society BBS at 867-4285 (8N1) 24 hrs. a day and the day of the trip, I will have a message on my answering machine.

If you have any questions in the meantime, give me a call at home. My number is 821-8516.

George Pellegrino, President

HELP WANTED by the Archivist

If you can help please call Jaclyn Lane at the number in the Society Staff list on the back of the newsletter.

The following issues of Sidereal Times are missing in a file being developed for our club's archives and library. One set will go to the Center for Southwest Research at UNM. The issues we have are due to the generosity of several members who lent them to the archivist.

1994 October, September, July, June, May, April, March, February, January
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1977 December, November, September, July
1976 June, January

Any copies of earlier Sidereal Times or precursor names for the newsletter would be most appreciated as well. There is evidence that newsletters have been published since the club’s beginnings when the name of the group was Albuquerque Astronomers.

ANNOUNCING THE 1995 MIRROR GRINDING/TELESCOPE MAKING CLASS

We have probably all dreamed about building a telescope at one time or another. Last September sixteen TAAS members (including me) had the opportunity to realize that dream when TAAS arranged a mirror grinding/telescope making class conducted by the famous San Francisco street astronomer John Dobson. Now I know from experience that building your own telescope is within the grasp of just about anyone who really wants to do it. I volunteered to teach the 1995 telescope making class so I could share what John taught me and help you realize a dream.

The class will cover all aspects of making a Dobson style reflector telescope. This includes constructing the mirror (grinding, polishing, and figuring), calculating the diagonal size, optical testing (learn how to measure a millionth of an inch with plywood technology), construction of the Dobson mount, and alignment of all the parts. No special skills or tools are needed for mirror construction but access to simple hand tools will be required to complete the telescope tube and mount.

A flier detailing the location, cost, and class schedule will be available at the August 12th meeting. As a general guide, the class last year consisted of one orientation meeting and 7 (two hour) class sessions. Mirror kits ran $70 (6"), $111 (8"), $242 (10") and $395 (12.5"). I hope we will be able to make the kits a little cheaper this year (especially for the larger sizes). The time constraint last year was based on Mr. Dobson’s schedule. This year we have the option of adding additional class days if necessary.

Please do not hesitate to give me (Michael Pendley, 266-0549) or Lisa Wood (344-8308) a call if you have any questions.

TELESCOPE RAFFLE

As you know, TAAS suffered a loss recently when the GTNO was burglarized. One fund raising idea, a telescope raffle, got a boost when John Triarchis donated the materials needed to fabricate a 12.5 inch mirror and Kevin McKeeon donated a 2.1 inch diagonal. Work on the defraction limited 1/7 mirror is complete and work on the Dobson mount is progressing well. We will be ready to star test as soon as the spider arrives and work on the mirror cell is complete. If all goes well, we will be able to publish the raffle details in next month’s newsletter and have the telescope on display at the September meeting.

OBSERVATORY COMMITTEE REPORT

The Observatory Committee met at Bill Tondreau’s house on August 5.

It looks like the long saga of the 16" mirror is about to come to an end. After numerous failed attempts to remove a mystery coating by chemical means, we finally sent the mirror to Steve Dodds of Nova Optical for repair. Steve informed us that the coating was a dielectric application of glass on glass, quite unusual for astronomical optics—no wonder we couldn’t remove it! Steve will remove the coating by repolishing the mirror. He promises to give us a “better than new” optical figure. We luckily got the mirror to him just before Steve was about to begin a polishing cycle, so our wait will be minimal. When polishing is done, the mirror will once again receive high reflectance, enhanced coatings.

A work party is scheduled for August 26 to install Gordon Pogue’s improved dome rotation design. With its mirror back in place and a dome that is less than torturous to rotate, the Observatory will once again be able to live up to its name! It’s been a long haul, but the end finally seems in sight.

What a pleasure it will be to use our restored Observatory to track comet Hale-Bopp’s blossoming on it’s sunward journey over the next year and a half. If you need a little extra motivation to come out on observing nights, how about doing so to keep an eye on the approach of what might possibly be the comet of the century.

With the Observatory finally back in operation we can go on to a number of easier goals. Painting, general building maintenance, observing pads, and grounds improvements all call out for doing. If you can lend a hand for an occasional work party, please call any of the following:

Chair: Gordon Pogue 299-5944
Kevin McKeeon 254-9117
Dennis Mitchell 877-1741
Granvil Morgan 864-6438
Karina Running Horse 275-4797
Bill Tondreau 263-5949
Lisa Wood 344-8308

ASTRONOMICAL CLASSIFIED

Astrophotographers’ 8” Meade SCT LX3 complete with hand held controller; Motofocus; Illuminated setting circles; Counter balance set; 8x50 finder with illuminated polar alignment reticle; heated dew shield; Meade off axis guider; illuminated guiding eyepiece; Meade 2x barlow; Meade super plossl and more. All in carrying cases and all like new. First $1100 takes all. Susan Kyle @ 881-4432.

Completely portable 6” f/5 newtonian. Meade mirror, Lumicon mirror cell and focuser on a maple base. Comes with a Telrad, $200 firm. Being sold by Jim Galvin through George Pellegino @ 821-8516.
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 ($24/12 issues), Astronomy ($18/12 issues) and CCD Astronomy ($20/4 issues) magazines, and books through Sky Publishing Corporation are available at a reduced cost when purchased by The Albuquerque Astronomical Society members through our Society. Include any of the above magazine renewal mailers and subscription payment as part of your renewal check (please renew 1 to 2 months early for uninterrupted magazine subscriptions). Membership dues are $20.00 per year and $3.00 per additional family member. Also available for qualified applicants is an Educator membership—contact a Board member for details. Membership Packets cost $3.50 each for new members or renewing members without the Packet. Contact the Treasurer for more information.

NEWSLETTER ARTICLES: Articles, personal or technical classified advertisements and business card size advertisements for businesses related to astronomy can be submitted within 3 days after the latest Society general meeting in order to meet the publishing deadline. Rates for business card size ads are $10/ad per issue of the Sidereal Times. $7/ad per issue for six continuous issues, and $5/ad per issue for twelve continuous issues. The Newsletter Editor reserves the right to include and/or edit any article or advertisement. ASCII files uploaded to the TAAS BBS newsletter file section are preferred. Contact the Newsletter Editor for more information.

CHANGE OF ADDRESS: Note that the

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The Albuquerque Astronomical Society

P.O. Box 54072
Albuquerque, NM 87153-4072

Address Correction Requested

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