And you thought math was not a requirement to be a member of TAAS!

The equation above is the Drake Equation—developed by the famous radio astronomer Dr. Frank Drake in November 1961. The equation uses $N$ to represent the number of “observable civilizations” that exist in our galaxy and expresses its value as a series of terms that can be estimated. For example, $f_p$ represents the fraction of stars that have planetary systems. A complete description of this equation can be found in Sky and Telescope, December 1998, page 36.

Don’t have a copy of that S&T issue?—not to worry. You can talk to the man himself. Dr. Frank Drake will be in New Mexico on October 30. Here is the press release describing the event (thanks to Dave Finley).

**SETI Pioneer to Lecture in Socorro**

Dr. Frank Drake, president of the SETI Institute and a pioneer in the search for life beyond Earth, will present the National Radio Astronomy Observatory’s annual Karl G. Jansky Lecture in Socorro. The lecture, which is free and open to the public, will be held at 8:00 pm, Saturday, October 30, at Macey Center on the campus of the New Mexico Institute of Mining and Technology (NM Tech).

Drake, a professor of astronomy and astrophysics at the University of California at Santa Cruz, is widely known as the author of the “Drake Equation,” a means of estimating the number of intelligent civilizations in our Galaxy with which we might be able to communicate. As a staff member of the National Radio Astronomy Observatory in Green Bank, WV, in 1960, he conducted the first radio search for extraterrestrial intelligence.

As president of the SETI (Search for Extraterrestrial Intelligence) Institute in Mountain View, CA, Drake provides overall direction for research, including the operation of Project Phoenix, in which sophisticated electronic equipment is transported to powerful radio telescopes around the world to search for signals from distant civilizations.

Early in his career, Drake shared in the discovery of the planet Jupiter’s radiation belts and conducted early studies of pulsars, spinning superdense neutron stars emitting lighthouse-like beams of radio waves. He is the author of more than 150 articles and books and has received numerous honors, including election to the National Academy of Science and selection as a Fellow of the American Association for the Advancement of Science, the American Academy of Arts and Sciences, and the British Interplanetary Society.

This is the thirty-fourth Jansky Lectureship, an honor established by the trustees of Associated Universities, Inc., to recognize outstanding contributions to the advancement of astronomy. First awarded in 1966, it is named in honor of the man who, in 1932, first detected radio waves from a cosmic source. Karl Jansky’s discovery of radio waves from the central region of our Milky Way galaxy started the science of radio astronomy. Recent recipients of the Jansky award include Nobel laureates Drs. Arno Penzias and Robert Wilson of AT&T Bell Laboratories; Dr. Joseph H. Taylor of Princeton University; the late Professor William F. Fowler of the California Institute of Technology; and the late Professor S. Chandrasekhar of the University of Chicago.

Contact: Dave Finley at (505) 835-7302 or by e-mail at dfinley@nrao.edu for more information.
PRESIDENT’S UPDATE

by David Nelson Blair

October 1999

TAAS recently faced the issue of Friday night activities, which became rather divisive over the summer. At the time that this newsletter is going to press, we’re tentatively settled on moving UNM night to Sundays. This is not yet firm, but because this may be implemented in late October, please check in with our hotline (296-0549) for the latest update before going to a UNM night around that time.

I appreciate all the forthright opinions expressed during our debate. I particularly appreciate the manner in which they expressed—hotly, yes; but openly and without acrimony. This makes for a healthy society. In fact, I recently learned from George Pellegrino that TAAS once pined for controversy, which leaves me with a sense of accomplishment.

UNM night remains a valuable asset to the Society. When I get calls from prospective members, it’s wonderful to have a local event less than a week away that I can recommend. The activity also sustains and active relationship with UNM, which provides us with rooms for both Board and General meetings. I look forward to a great many more sessions at UNM observatory.

Nominations and Awards

At our September 23 Board of Directors meeting, TAAS established its Nominations Committee and Awards Committee.

Kevin McKeown will chair the Awards Committee. He and members Gordon Pegue and Robert Ortega will select recipients for the William S. Isengard Award for generosity to the Society, the John Dobson for outstanding contributions to education, and up to five Service Awards.

I will chair the Nominations Committee, which is charged with nominating officers for the January 2000–January 2001 term. Joining me on this committee are Allan Green and Robert Ortega.

Both committees welcome input from the general membership.

I have taken on the Nominations Committee because, as I announced to the Board of Directors on September 23 and to the general membership two nights later, I will not be returning as TAAS president or director in January. The demands of career development and a yearning to return to two long-standing but neglected loves—writing and observing—will prevent me from putting in the time that a TAAS leadership position demands.

But has it ever been worthwhile! (More on that in the months to come; I’m not done yet.)

Random Acts of Kindness

Barry Spletzer has completed a Dobsonian mount for a 6” Newtonian that is available for use at GNTO. The telescope was formally used as a guide scope on the Isengard, the observatory’s 16-inch reflector. This is the second telescope that Barry has mounted for the Society this year, and we’re very appreciative.

Thanks to all those who participated in the GNTO work party that installed a peer for the Astrophysics Refractor. Specifically, Rick Hudson donated a 55-gallon drum and Rich Zamarron 5-gallon buckets with lids—both for water handling.

Barry Gordon has graciously donated the following books to the TAAS library: CCD Astronomy by Christian Buil. Telescope Optics by Rutten and van Venrooig. Beyond the Blue Horizon by E.C.Krupp. Observing and Photographing the Solar System by Dobbins, Parker and Capen.
The September 23, 1999 Board of Directors (BoD) meeting of The Albuquerque Astronomical Society (TAAS) was called to order at exactly 7pm by President David Blair. Other board members present were Robert Williams, Sammy Lockwood, Gordon Pegue, Robert Ortega, Allan Green, Kevin McKeown, Bruce Levin, and Carl Frisch. Observers included Mike Pendley, Lisa Wood, Barry Gordon, and Steve Cory from the New Mexico State Parks. Tom Pannuti arrived late in the meeting.

August 22 minutes.
Sammy read the minutes from the August 22 BoD meeting. Kevin noted that Bob Kyrilach’s name was misspelled. Gordon motioned to accept the minutes with the correction, Robert Ortega seconded the motion, and the minutes were accepted unanimously. Sammy then read the minutes from the August 26 Special BoD meeting. David noted that he should have been listed as a member of the Public Relations Committee. Gordon motioned to accept the minutes with the correction, Kevin seconded the motion, and the minutes were accepted unanimously.

Treasurer’s Report.
Robert Williams presented the September Treasurer’s Report. Education funds on deposit were $1639.96. General Nathan Twinning Observatory (GNTO) funds on deposit was $2082.32. General funds on deposit were $527.50 for a total balance of $4249.88. Robert added that a $125 deposit had just been made that was not reflected on this report.

Visitor.
David introduced Steve Cary from the NM State Parks, who read a letter of thanks from NM State Park Director Thomas Trujillo for the Work that TAAS has done this year with Astronomy programs at the parks (the letter is reprinted on page 12—ed). Steve also asked that TAAS consider a Star Party at Santa Rosa Lake on 9/23/00 and Bluewater Lake on 6/24/00. The items were noted for future consideration, and Mr. Cary left the meeting.

Committee Reports.
Nominating Committee: David explained that due to time constraints, he will not serve as TAAS President next year, and will chair this year’s nominating committee. Robert Ortega and Allan Green also volunteered for the committee.
Award Committee: Kevin volunteered to Chair, Gordon and Robert Ortega volunteered to serve on this committee.
Potluck Committee: Bruce volunteered to Chair, Kevin volunteered to serve, Carl and Robert Williams volunteered to help this committee. Lisa noted that she does not wish to decorate the potluck again this year.
Observatory Committee: Robert Ortega read the minutes from the 9/16 GNTO Committee meeting. A tentative budget was created, future meeting places were discussed, and the need for more members in the GNTO committee was discussed. A successful work party was held on 9/18. All TAAS members are encouraged to get out and enjoy GNTO.
Grants Committee: Allan announced that the grant request to Intel has been submitted, but there is no word yet on it’s results. He asked for ideas on other organizations to petition for grant money. Several possibilities were discussed including the United Way, the Albuquerque Community Foundation, and Bill Gates.
Membership Committee: Robert Williams explained that his committee had met on 9/9 and had discussed the use of Astronomy 101 to indoctrinate new members, the need to update the membership packet, the need for BoD members to approach and welcome new members and guests, and the use of a greeter at the general meetings.
Public Relations Committee: Sammy explained that his committee had met on 8/31 and had discussed which TAAS items to promote, and how to promote them. A press kit is being made to act as a quick desktop astronomy reference for assignment editors, and local telescope dealers are now being supplied with TAAS brochures. Sammy then motioned making and selling a TAAS license plate’s, and circulated a design proposal with prices starting at $221 for 100 plates. Although the idea seemed to be accepted, there was concern over spending the money due to the low TAAS treasury balance. Sammy then amended his motion, stating that he, and any other interested member present would underwrite the costs, initial proceeds would used to repay the underwriters, afterwards all proceeds would go to the TAAS treasury, and all underwriters would receive a free plate. The motion passed unanimously.
Lodestar Committee: Carl explained that there is no real news, except that Lodestar is still preparing for the December opening of the Astronomy wing at the Museum of Natural History.
Calendar.
Carl motioned that Two Chaco Canyon dates be added for 5/27/00 and 9/30/00. Robert Ortega seconded the motion, and the board approved the dates unanimously.
Past Events.
Chaco Canyon 9/4: Carl and Gordon reported that the weekend at Chaco was FANTASTIC, with good TAAS turnout and great skies. 50-80 people attended on the public viewing night.
ATM Classes: Mike reported that the classes are off to a slow start, with 3 members making scopes. He expects things to pick up as Ray Collins an-
What’s Up For late October and November

by Kevin McKeown

The first stages of the Orionid meteor can be observed, through about October 21st, before the moon becomes too great. Although the Orionids are said to peak on the 21st, I find that best rates occur on the morning of the 19th. Orionids are faint meteors, so seek out a dark site. Don’t forget the sporadics—they’re a lot of them during the Orionids. In fact, the sporadic rate usually overwhelms the Orionids rate!

Late October also features a poor evening apparition of Mercury, when greatest eastern elongation is October 24th. Also, your chance to recover 7 Iris occurs on the night of October 29-30, when this asteroid passes 23 arcseconds south of the star 54 Cancri at 7:34 UT (Sky and Telescope, page 103)! November 1999 features two major events: a transit of Mercury on the 15th, and the Leonid meteor shower on the mornings of the 16th through 19th. The transit of Mercury is entirely visible from Albuquerque, and lasts about 1 hour, centered on about 2:23 PM MST, Monday, the 15th. Contact Mike Pendley at 296-0549, or Bruce Levin at 299-0891 for details, and tips on how to safely observe the sun! They also have a public star party in the works. Again, use caution when observing the sun.

The Leonid meteor stream offers the possibility of remarkable activity on two nights, it would seem. First, on the morning of November 17th, the strong rates, and fireballs seen at GNTO in 1998 may return. Joe Rao, of Sky and Telescope, thinks not, but you need to observe anyway—because if it does not repeat, this too is valuable data! On the following morning, the potential for a rare storm (meteor rates >10,000/hour) exists!!! This is the night of November 17th-18th. The potential storm is associated with a second peak, or maximum, observed in Japan some 18 hours after we saw the wonderful display at GNTO in 1998.
### December 1999

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<td><em>GNTO Mtg.</em></td>
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<td><em>GNTO Mtg.</em></td>
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<td>• Vesta ~0.4° from moon</td>
<td>• New Moon at 15:32, <em>Alvarado Elem. School</em></td>
<td>• Early sunset</td>
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<td>• Board Mtg. (7pm @ PandA building)</td>
<td>• Winter Solstice Potluck</td>
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<td>• Mercury ~3° from moon</td>
<td>• Mercury at W elongation</td>
<td><em>Moon at apogee, 63.8 Earth-radii at 04:00</em></td>
<td>• <em>GNTO Mtg.</em></td>
<td>• First quarter at 17:50</td>
<td>•Board Mtg. (7pm @ PandA building)</td>
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<td>• St. Lucy’s Day (middle of winter)</td>
<td>• Mars ~0.7° from Uranus</td>
<td>• First quarter at 17:50</td>
<td>• Board Mtg. (7pm @ PandA building)</td>
<td>• UNM (call to confirm)</td>
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<td>• Mercury Stationary in RA at 22:00. End retrograde motion</td>
<td>• Full Moon at 10:32</td>
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<td><em>Moon at perigee 55.9 earth-radii</em></td>
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<td><em>Last quarter 07:05</em></td>
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The best estimate for a storm to occur is at 4:15 UT on Nov. 18th, sometime after the Earth crosses the orbital plane of comet Temple-Tuttle. This is 9:15 PM MST, November 17th—before the radiant rises for New Mexicans (and why yours truly will be in the Canary Islands!). However, New Mexicans need to be watching for the very rise of the radiant—about 11:25 PM, Nov. 17th—in case the projected outburst is delayed! Additionally, you might want to monitor the Leonids on the mornings of Nov. 16th, and 19th, to see what shows. For very complete information, please refer to the November 1999 issue of Sky and Telescope. Make all efforts to observe the Leonids this historic year!!!

**GB is Back in October!!!**

*by Michael Pendley*

Great Bear Cornucopia (GB to his friends) will once again speak to TAAS at the October 23, 1999 General Meeting. This will be GB’s third presentation to TAAS. Past talks were October 1994 and April 1997.

Once again, GB will discuss Archaeoastronomy at Chaco Canyon—a subject on which he is quite expert. GB will also be able to give us an update on the Chaco Canyon observatory.

The meeting will be at Regener Hall and start at 7pm as usual. Don’t forget to bring some goodies to share during the social hour!

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**NOTES:**

- **TAAS**=The Albuquerque Astronomical Society
- **GNTO**=General Nathan Twinning Observatory. Call Gordon Pegue @ 332-2591 to confirm.
- **UNM**=University of New Mexico Observatory. Call the TAAS hotline @ 296-0549, or the UNM hotline @ 277-1446 to confirm.
- **ATM**=Amateur Telescope Making. Call Michael Pendley for information @ 296-0549.
- **PandA**=UNM Physics and Astronomy. Corner of Lomas and Yale.
When And How Was The Size Of The Earth First Estimated?

Eratosthenes provided the first scientific estimate of the size of the earth between the second and third century B.C. He lived from 276 to 195 B.C. and was a member of the Alexandrine School in Egypt.

Eratosthenes accomplished this feat with knowledge, inquiry, reason, observation, and measurement. He heard that the sun was directly overhead in the city of Syene in upper Egypt at solar noon on the Summer solstice. On this same day, Eratosthenes placed a straight stick in a vertical position in the ground in Alexandria. The midday sun cast a shadow for which he determined the sun to be at an angle of slightly more than 7 degrees from the zenith. The noctime sun in Syene did not cast any shadow from a stick pushed vertically into the ground indicating that the sun was at the zenith.

The angular distance turns out to be approximately 1/50 the circumference of a circle. Syene, being due South from Alexandria, had to be approximately 1/50 the way around the earth. The distance from Alexandria to Syene was known to be 5000 stades or stadia. From the known distance and acquired knowledge, Eratosthenes estimated the earth’s circumference to be 250,000 stadia. This figure was altered to 252,000 stadia to yield 700 stadia per degree on earth. The single unit stadium may relate to the linear size of an Olympic stadium at the time for a distance of 0.17 km or 0.106 miles. This estimated value is approximately 5% lower than the present day calculated value.

References:

Alexandria

The center of Greek scientific philosophy and learning was moved from Greece to Alexandria. Alexandria was founded by Alexander the Great in 332 B.C., and became the capital city of Egypt. Alexander was a pupil of the Greek philosopher and scientist, Aristotle. The city was the capital during the rule of successive Ptolemies. These kings founded the famous museum which housed a magnificent library and observatory. With the support of these rulers, particularly the second king Philadelphos, Alexandria was known as the center of learning which became the home of distinguished mathematicians and astronomers known as Alexandrines.
Placitas Star Party
by Barry Gordon

On Saturday evening, November 13, TAAS will be going back to the (relatively) dark skies of Placitas, for another Star Party hosted by Las Placitas Association, an open space advocacy group.

The timing of this event could hardly be better, as every one of the very favorite “show stoppers” for the general public will be up there waiting for us. Sunset will be at about 5:00 (MST), and astronomical twilight will end at 6:30. We will have a 5-day-old waxing crescent moon, which is always a “graber” for the inexperienced; and it should pose no problems for deep sky objects (it will set at 9:30). Among the other objects above the horizon at that time will be: giant Jupiter, ringed Saturn, the “cub scout” double star Albireo, the double-double epsilon Lyra, the Pleiades open cluster, the magnificent Great Globular Cluster in Hercules, and the spectacular Andromeda Galaxy—a sky virtually tailor-made for the first-time observer.

We will be observing from a new location: a cul-de-sac named Calle Ponderosa, with four houses (plus one currently under construction), on the top of a hill, with a glorious panoramic all-sky view. To get there, take I-25 to the Placitas exit (#242). Go East on NM-165 for about 2.1 miles, and then turn left onto Tierra Madre Road. After about 0.8 miles, Tierra Madre Road, for no readily discernible reason (after all, this is the Land of Enchantment), abruptly becomes Camino Barranca. Never mind—just keep going (but carefully, as there’s a hair-pin turn just ahead). After about another 0.8 miles (or 1.6 miles from NM-165), Calle Ponderosa will be on your left.

Plan to arrive no later than 5:30 (the end of civil twilight). Drive all the way to the nicely widened end of Calle Ponderosa, and then make a U-turn, heading back out of Calle Ponderosa.

On the way, you have not been out to GNTO you are missing out on a great looking place—and we have Carl Frisch to thank. He has been working without fail making it look great. So please, everyone go out to GNTO and enjoy your observing area and observatory.

Astronomical Calendar 2000
by Bruce Levin

For those members that are interested, Guy Ottewell’s ASTRONOMICAL CALENDAR 2000 (Almanac) can be purchased at a reduced rate if an order is put in for four or more books. This publication is 11 x 15-inch format. This widely used guide explains what will happen in the night sky throughout the year using text with charts and 3-D diagrams. It offers astronomers rich information on many subjects in astronomy from moon phases, the planets, eclipses, occultations, and much more.

The cost will be $18.60 per book for four copies ordered, $18.00 per book if ten copies are ordered, and a little less than $18.00 per book if more than ten copies are ordered by our group (these prices include shipping!). The normal cost of this publication is $22.00 plus $3.00 for shipping if an individual is to buy one book. I plan on bringing the 1999 edition to the upcoming meeting for anyone to look at. I think you will find that this is a very useful and worthwhile reference for your observing library or use in the field. If you would like to take advantage of this bulk order offer, then please give me a call at 299-0891 to let me know or sign the order list at the October meeting with a check or cash for $18.60. I plan to mail the order off on Friday, November 5th (thirteen days past the general meeting) so that we may have the calendars by the December 18th Potluck Meeting. Thanks! I also plan to bring a list of other publications that can be ordered at the same time. If four or more orders are placed for a given title, then the particular publication can also be purchased at reduced cost.
nounces the class to his students at Valley High. The PR committee will also start publicizing the class.

Belen Central 9/14: Lisa reported that despite the overcast, 400 people saw presentations in the TAAS and Lodestar Starlabs, and that the Lodestar people were very friendly.

Future Events.

General Meeting 9/25: Kevin reported that Bob Kyrach will speak on a range of topics from Early TAAS, to his Amateur Astronomy in general, but will need some help with his equipment. David agreed to provide the Trivia question.

Osuna Elementary 10/12: Lisa reported that no prep work has been done yet, but asked everyone to come. Gordon asked Lisa if schools that have not had a star party could be given priority. Lisa explained that she plans to change her policy next year along those lines.

Educators' Night: David explained that Lodestar will host a viewing night for public educators at the UNM observatory on 10/18, and could use some help.

Mercury Transit 11/15: Mike explained that Mercury will transit the Sun on the afternoon of 11/15, and suggested organizing a TAAS media event. Sammy said that he really liked the idea, but didn’t want to do it at UNM because the public might assume it was simply a UNM event. Lisa agreed, but added that we shouldn’t affiliate the event with anyone, because the media might not give TAAS proper credit. After a short discussion, Sammy motioned that we schedule the 11/15 Transit as a TAAS event, to be held at Downtown Civic Plaza of some other unaffiliated location. Gordon seconded the motion, and the board passed the event unanimously. Bruce countered that the GNTO events get more members familiar with what GNTO has to offer and operations workshops are just part of that effort. Bruce motioned that the GNTO events on Friday nights are a clear conflict. Gordon suggested a separate meeting to discuss the issue. After additional discussion, the board passed Gordon’s motion 4-3, with two abstentions. Gordon then motioned to schedule a special closed BoD meeting to define the future of our relationship with UNM, and the fate of UNM campus nights. Robert Ortega seconded the motion, which passed unanimously.

New Business

Carl's Phone: Lisa suggested that TAAS budget $20 a month to offset the expenses of Carl’s cell phone, so that he can leave it on at GNTO, so members can call Carl and get conditions at GNTO before the long drive. Gordon opposed the principal of paying for anyone’s phone bill. After discussion, Robert Ortega and Robert Williams offered to reimburse Carl’s expenses with other means.

Marsville 3/25/00: Robert Williams explained that Rhonda Cole from USAF Education Office has asked for assistance on a city wide school astronomy project on 3/25/00 from 9am-3pm, at an undisclosed location. Robert motioned that TAAS add this event to our calendar. Gordon seconded the motion, which the board passed unanimously.

Newsletter Assignments were handed out, and the meeting adjourned at exactly 9pm.

These minutes will not be official until accepted by the Board of Directors — ed.

GNTO News

by Carl Frisch

The work party on September 18th went well. The Pier for the Astro-Physics Refractor is now firmly planted in about two yards of concrete. Thanks to all who helped. The Friday nights workshop is off to a slow start, but I expect more participation when word gets out. Thanks To Lisa Wood, we will soon have a GNTO operations manual. This will be a valuable aid for learning and operating our observatory. Don’t forget every Friday night we’ll be holding the workshop at GNTO; topic, your choice, but the main push will be to get more members familiar with what GNTO has to offer and operations check out.

The observatory committee has put together the first draft of an operating budget. To maintain the observatory we estimate about $75 per month will be spent. This will leave emergency funds and money for some upgrades over time. The Photovoltaic system is flawlessly providing for all our current power needs. To date we have pulled 20,800 ampere-hours from the batteries; that corresponds to roughly 250 Kilowatt-hours. Thanks again PNM for getting us on line.
Annual Pot Luck Dinner Preview
by Bruce Levin

Even though we are two months away now, it is time to mark your calendars for the Annual Winter Solstice Potluck Dinner Party. This year’s festivities will be held on Saturday, December 18th in the gym of Heights Cumberland Presbyterian Church. A map and directions will be provided next month. This is the same venue as the last two years. There is an adjacent kitchen and the facility has plenty of room for our inflatable planetarium and show and tell items that people wish to share. Your favorite main dishes, salads, or desserts will be savored by all.

The dinner starts around 6:00 in the evening. If you wish to help ahead of time, setup will start at 4:00 pm. Pick up your phone now and contact Bruce Levin at 299-0891 if you can help. Friends and interested prospective members are also invited. Your special dish is your ticket for this event. Food, fun, conversation, and sharing is guaranteed.

Mercury Magic
by David Nelson Blair

The planet Mercury is next month’s poster boy for rapid transit, and on November 15, TAAS will assemble a gaggle of Monday-afternoon astronomers to cheer him on from downtown Albuquerque’s Civic Plaza.

The Solar System’s innermost planet will pass between the Earth and the Sun between 2:11 and 3:10 pm MST. Telescopically, it will appear as a silhouette—a tiny, very black, perfect circle—crossing the limb of the Sun.

TAAS will respond with Mercury Magic—a public viewing session employing amateur telescopes equipped to observe the Sun safely. Current plans call for one telescope to supply a video feed while others allow direct viewing by the public.

Mike Pendley will be our video master; Sam Lockwood our logistics director for the event. Sam has already been beating the pavement making calculations, making sure Albuquerque’s tallest buildings won’t obscure the solar disk during the transit.

Viewing the Sun, especially through a telescope, is inherently dangerous, so public viewing will be supervised by experienced solar observers with properly equipped telescopes (see box).

This transit of Mercury is the fourteenth and last of the twentieth century. The last occurred on November 6, 1993, and the next will occur May 7, 2003.

It is particularly significant because it is a grazing transit. Viewed from Albuquerque, the limb of Mercury will never be more than 6 arc-seconds inside the limb of the Sun. In fact, from Sydney, Australia, the transit will be partial; the silhouette of Mercury will never be fully in front of the solar disc.

New Mexico’s view of Mercury’s grazing trajectory will allow a prolonged look at the “black drop” phenomenon, the apparent branch of darkness between the limbs of the planet and the Sun.

In past centuries, careful timings of transits of Mercury and Venus allowed astronomers to determine the size of the solar system. The 1999 transit will afford an opportunity to make precise measurements of the radius of the Sun, allowing a test of the theory that the size of the Sun varies slightly.

The Civic Plaza event, however, will be dedicated to public viewing.

Civic Plaza was not locked in at press time and we will probably not have time to get additional information out via the newsletter before the event. If you are interested in attending please contact Sammy Lockwood or call the hotline for final information related to location, times, parking arrangements, etc.—ed.

Solar Telescopes
by Michael Pendley

If you want to watch the Mercury transit on November 15 you have several safe options. A good place to start is with A Beginner’s Guide to Solar Observing, Sky and Telescope, June 1999, page 122.

The August 1999 edition of Sky and Telescope reviews several types of solar filters that reject most of the sun’s energy before it enters the telescope. For something different—consider the “Sun Gun”. A description and construction details are available in the June 1999 issue of Sky and Telescope (page 126) or on the web at http://www.america.net/~boo/html/sun_gun.html. Mine is almost complete. Come to Mercury Magic and check it out!

Sun Safety

As with any public viewing event, TAAS hopes to see plenty of docent telescopes at Civic Plaza November 15, but in the name of public safety, we have to be choosy this time.

A participating telescope must be of the projecting type (i.e. no direct viewing through the eyepiece is possible) or equipped with a filter that reduces sunlight before it is concentrated by the objective glass. Old-fashioned solar filters that screw into eyepieces are not acceptable because concentrated sunlight may crack them suddenly.

Filters must be commercially made for the specific purpose of solar viewing. Filters constructed from stacked photographic negatives are not acceptable because they may admit a dangerous amounts of light outside the visible spectrum.

A filter must be seated securely enough to remain in place in the event that a telescope is accidentally bumped.
**Docent News**  
*by Lisa Wood, Education Liaison*

**500 Kids Muse on Mars!**

Our first star party of the school year was held at Central Elementary where over 500 kids of all ages looked at Mars and other objects through telescopes. We had a large contingent of docents, as well as some much appreciated help from UNM’s LodeStar Project, who brought an EXTRA Starlab to help us deal with the big turnout we had anticipated. Thus our Night of the Parallel Universes (2 Starlabs—get it?) went quite well. Thanks to all who participated!

**Osuna Elementary is Our Next Star Party!**

Tuesday, October 12. Corner of Osuna and Moon Street.  7 pm. — Please come and help or just enjoy!

**Family TAAS Passes!**

These passes are available to members of TAAS. They ensure you entrance into the Starlab shows, which tend to be “sold out” right away. What a perk! You’ll get a pass to the show without the nuisance of waiting in line! You’ll feel like a (minor) celebrity! The activities are geared especially for families, so please come. Call Lisa W. or Robert W. (back) for info on TAAS Passes.

**I’M GETTING DESPERATE!**

Please call me right away if you can commit to 6 school star parties as the Slide Show Guy or Gal. We give 6 fifteen minute presentations. You can put together your own show or use one that Sammy Lockwood has put together, that will have a script. You don’t need know to lots about astronomy—we just need a cheery adult who likes kids and doesn’t feel uncomfortable saying, “That’s an interesting question. I don’t know that answer to that! You might want to ask one of the astronomers outside!” Please call Lisa!

**Confessions of a Docent**  
*by Sammy Lockwood*

Sometimes it’s funny how things work out. I never thought that an astronomy club could make me into a philanthropist, but it has.

You see, like some of you, I’ve never been much of a “joiner.” Between my worlds of family and career, I haven’t made much time for myself. Activities that I have been involved with usually revolved around my two worlds: Church, Scouts, Union, etc.

Then along came TAAS. For me, TAAS started as a family event. I could justify the time spent with TAAS because it’s often good family time too. But at our school star parties I discovered a new reason: The joy of showing someone something beautiful and wondrous that they’ve probably never seen before.

The personal satisfaction of seeing and hearing the reaction of people looking through my telescope is priceless. The guilty look from full-grown adults who get caught sneaking back into line for a second peek is simply marvelous. To see the sparkling reflection of the moon in the eye of a small child while they gape open mouthed through my eyepiece is heartwarming. I feel like a cosmic philanthropist!

The odd thing is, these people act like I’m doing them a favor. First they warm my heart at the eyepiece, then they bend over backwards thanking me for my “trouble.” Sometimes it’s funny how things work out.

If you haven’t experienced this rewarding side of Astronomy then do yourself a favor and become a docent. TAAS has public viewing scheduled at the UNM Campus Observatory (on Yale, just north of Lomas) every week, and school star parties almost every month. And if you’ve been avoiding TAAS events because you just don’t feel knowledgeable enough to get involved, then I’ll never have the joy of showing you. Join us.

**License Plates! Get Your Red Hot TAAS License Plates Here!**  
*by Sammy Lockwood*

The TAAS Public Relations Committee is now offering license plates that tell the world who you are—a member of the best Astronomy Society in the Southwest.

TAAS License plates are made locally with deep blue letters and graphics on white aluminum, which proudly display the TAAS name and logo, and are $5 each.

So, take a look at the front bumper of your car . . . Go ahead, take a good look. Does your front license plate holder empty, or worse, give fee advertising for Galles, Rich Ford, or some corporation that you probably couldn’t care less about? Well, it’s time to dress things up with a TAAS License Plate.

TAAS license plates may be purchased at any TAAS general meeting, or you can contact Sammy Lockwood at 273-0258.

**UNM Report**  
*by Jay Harden, UNM Campus Observatory coordinator*

3 Sept—We had a clear night. Forty viewers were treated to views of several objects. Docents in attendance: Kevin McKeown, Bill Tondreau, Jay Harden.

10 Sept—Clear night with approximately 40 viewers. Docents in attendance: Kevin McKeown & Jay Harden. Kevin had the only telescope set up. (my back told me not to pick mine up).

17 Sept—Cancelled due to clouds.

24 Sept—Good viewing night - not a single cloud. We had sixty viewers; five telescopes and one binocular set up. Attending docents: Mike Pendley, Brock Parker, Bill Tondreau, Kevin
McKeown, Jay Harden. The best night we have had recently.

1 Oct—A good night all around. We were quiet busy. Mike and I decided that we had at least 100 viewers and the sky was clear. We had seven telescopes and one binocular operating. Docents attending were: Brock Parker, Paul Grunwald, Susan Grunwald, Kevin McKeown, Bill Tondreau, Mike Pendley, Pete Eschman, Katherine Blankenburg, Jay Harden.

On the night of 10 September, Channel 13 had a cameraman at the observatory. His pictures and story were on the 10:00 PM news. Of all nights for us to have only one telescope operating.

Boy Scouts of America Astronomy Explorer Post

by Michael Pendley

Exploring, which is part of the BSA’s Learning for Life program, is a Boy Scout activity for young men and women between the ages of 14 and 20. Its purpose is to allow young adults to explore, in depth, subjects like law enforcement, amateur radio, sailing, fire protection, and all types of science.

The local BSA Council is considering the creation of an astronomy related Explorer Post in Albuquerque and is looking for adults who can act as councilors.

Exploring is a youth run activity. That means that the young adults in the Post are responsible for organizing and managing activities. Adults are responsible for supervising, giving advice, and acting as technical councilors.

TAAS member (and local BSA Council Vice Chair for Membership) Alison Schuler, TAAS President David Blair, and I met recently to discuss the subject. We felt that TAAS would be a natural “Charter Organization” (and could greatly benefit through the addition of a youth docent pool) but only if sufficient adult leadership could be found. We felt the best way to proceed was for TAAS and the local BSA Council to seek volunteers through their respective channels then meet again to see if the interest level warrants approaching the TAAS Board of Directors with a specific proposal.

No prior BSA experience is required. BSA has excellent training materials and support structures. You don’t even need to be a wiz at astronomy. Just willing to provide a couple of hours a week to help the program along. Call the TAAS hotline (296-0549) if you are interested or simply want more information.

Looking for Satellites

There’s a neat website; you should try it. This site is called J-Track and is sponsored by NASA. You can see where satellites are on an earth map. It updates the locations of the satellites about every 20 seconds. When I started writing this article here are where some satellites were:

- **Hubble**—flying over New Guinea
- **MIR**—flying over Somalia
- **International Space Station**—flying over Madagascar.

The satellites move very quickly. To find out more about each satellite, you can click on it, and learn what experiments the satellites are doing. There are many different kinds of satellites you can look at. This is a fun website. It’s address is http://liftoff.msfc.nasa.gov/RealTime/JTrack/Spacecraft.html.
New Mexico State Parks Sends a Big Thanks

As mentioned in the minutes of the September 23, 1999 Board of Directors meeting (page 3), Steven Cary from New Mexico State Parks, read a letter to president David Blair into the record. Here is the text of that letter.

September 22, 1999

David Blair, President
The Albuquerque Astronomical Society
P.O. Box 50581
Albuquerque, NM 87181-0581

Re: Thank You!

Dear President Blair:

On Behalf of New Mexico State Parks, please accept my thanks for the great Star Parties that TAAS put on for State Parks in 1999. Two Star Parties at Elephant Butte Lake State Park and one each at Bluewater Lake State Park and Manzano Mountains State Park were well-attended by our visitors and very much appreciated by all who participated.

Interpretive and educational programs like yours will be of increasing importance as State Parks moves forward into the 21st century. While we continue to serve the public by providing campgrounds and recreational facilities, our visitors increasingly demand more information about the natural and cultural resources featured at the parks.

Our dark night sky clearly represents one of our most precious resources. I am grateful for your generous donations of time and effort to put on these astronomy programs. Your Star Parties go a long way toward informing our visitors, who are more likely to appreciate and help us protect the resources for the public.

State Parks looks forward to future collaborations. Let me know if I can assist you in any way.

Sincerely,
Thomas P. Trujillo, Director
New Mexico State Parks

28 of 33 responded correctly with (c). Dee Friesen had the correct answer and was first picked.

September Trivia Contest

Two A’s, one S. Be sure and get TAAS’s initials right, because once upon a time, TASS stood for something else. What was it?

a) The Soviet Bureau of Energy
b) The Soviet Interior Dept.
c) The Soviet News Agency
d) The rubber-stamp Soviet Parliament
e) The Cosmonaut Wives Society

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Friday: 7-9:30 pm
Saturday: 12-4:00 pm

Ask about the TAAS member discount
I have just recently been invited to participate in a NASA airborne mission to take extensive data on the Leonids. It sounds wonderful. Fly to Europe, take data over the Mediterranean at the secondary peak from 40,000 feet where there’s no atmospheric extinction — what a trip! Unfortunately, this takes me away from the New Mexico project. Laura has bravely agreed to shoulder the burden, and I am making the equipment easier for anybody to set up and operate so that my absence will not affect the data gathering.

Chris Crawford
chriscrawford@wave.net

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and the upper limit on event count is decided by the size of the hard disk. I’ll be doing power consumption tests and temperature sensitivity tests during the remaining time.

With lots of observers and plenty of Leonids, I should be able to explore some interesting questions. First, I hope to take another crack at the old temporal nonrandomness issue, which has never been answered to my satisfaction — the data just haven’t been good enough. We might also be able to use this data to get a much clearer idea of just how reliable the human observer really is — sort of a modified and vastly enlarged Opik double-count.

So here I am all dressed up and ready to go to the dance, but the big shebang in Jordan is beyond my means, so where will I go? Surely not my home in Oregon — it will almost surely be cloudy. Much examination of meteorological data leads me to conclude that the surest bet in the USA is the Rio Grande valley in New Mexico; the data I have seen indicates that they have NEVER had precipitation in November since they began taking records! Moreover, my friend Laura Mixon, who lives in Albuquerque, assures me that November is always clear and cool. She has identified a site at a wildlife refuge near Socorro that looks ideal for our needs.

Which brings me to the purpose of this post. I’m recruiting observers for this thing. I could sure use a passel of warm eyeballs. I ask volunteers to contact Laura Mixon via e-mail at ljm@digitalnoir.com or myself at chriscrawford@wave.net.

If there’s interest in building devices similar to mine, I’d be happy to cobble together the plans for mine. It cost about $150, not including the Mac and a power inverter for the Mac. If you use a Mac, I can supply you with the software, but you can use a Wintel machine if you’re willing to do some simple programming on your COM port. Warning: if you do use a Wintel machine, you’re on your own — I myself would never attempt to program one of those things.

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**CLASSIFIED ADS**

No ads this month
MEMBERSHIP: You may request a membership application by calling the Hotline or by sending e-mail to the Database Manager (see previous page). Applications may also be downloaded from the Web site. Annual dues to The Albuquerque Astronomical Society are $30/year for a full membership and $15/year for an educator or full time student membership. Additional family members may join for $3/each (educator, student, and family memberships are not eligible to vote on society matters). New member information packets are available for $3.50 (free copies are available from the Web site). 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 (see previous page) at the next meeting.

MAGAZINES: Discount magazine subscriptions to Sky and Telescope ($29.95/12 issues) and Astronomy ($29/12 issues) as well as discounts on books from Sky Publishing Corporation are available when purchased by TAAS members through our society. Include any of the above magazine renewal mailers and subscription payments as part of your renewal check (We recommend you renew 1-2 months early to ensure uninterrupted magazine subscriptions.).

NEWSLETTER ARTICLES/ADVERTISEMENTS: Articles, personal astronomical classified advertisements and business card size advertisements for businesses related to astronomy must be submitted by the deadline shown on the Society calendar (generally the Saturday near the new Moon). Rates for business card size ads are $10/ad/issue or $7/ad/issue for 6 consecutive issues or $5/ad/issue for 12 consecutive issues. The newsletter editor reserves the right to include and/or edit any article or advertisement. E-mail attachments in Microsoft Word, 10 point Palatino, justified, .25 inch indent at paragraph beginning, no spaces between paragraphs is preferred. ASCII and RTF are acceptable. One column is approximately 350 words. Contact the Newsletter Editor (see previous page) for more information.

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TAAS Hotline: (505) 296-0549

Map to UNM Campus Observatory
(not to scale)

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