April 1999

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Table of Contents

Departments

- Calendars
  - Calendar of Events for May 1999
  - Calendar of Events for June 1999
- Lead Story: Beth Fernandez is National Young Astronomer
- Presidents Update
- Constellation TAAS
- The Board Meeting
- Observatory Committee
- Last Month's General Meeting Recap
- Next General Meeting
- Observer's Page
- What's Up for May
- Ask the Experts: How can I measure the focal length of my mirror accurately?
- The Kids' Corner
- ATM Corner
- Star Myths
- UNM Campus Observatory Report
- Docent News
Astronomy 101
Astronomical Computing
Internet Info
Chaco Canyon Observatory
Trivia Question
Letters to the Editor
Classified Ads

Feature Stories

- Oak Flat
- Astronomy Day ’99
- Space Day ’99
- We need Eyepieces!!!
- 1999 Broline Science Fair Awards

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 Society member will happily accompany you to your car.

Calendars

Calendar Images

- May Calendar
  - GIF version (~67K)
  - PDF version (~46K)
- June Calendar
  - GIF version (~44K)
  - PDF version (~46K)
- TAAS Calendar page

May 1999

1 Sat  * General Meeting, 7 pm, Regener Hall
       Mars nearest to Earth (.578 au at noon)
2 Sun  Moon at apogee 63.7 earth-radii at 1 am
3 Mon  * Alamosa Elementary School
4 Tue
5 Wed  Venus becomes nearer than 1 au to Earth (8 am)
6 Thu  Neptune stationary in RA (3 pm). Begin retrograde motion
       Space Day at Atomic Museum
       Neptune stationary in RA
7 Fri  * UNM Call hotline to confirm
       Uranus @ west quadrature
8 Sat * GNTO
   * Carlsbad Caverns
     Last quarter 11:30 am
     Moon occults Uranus ~11 am
9 Sun * Carlsbad Caverns
10 Mon
11 Tue
12 Wed * Algodones Elementary School
13 Thu Mercury 0.62 deg NNW of Saturn
14 Fri * UNM Call hotline to confirm
     Sun enters Taurus at 4 am
15 Sat * Oak Flat
     New Moon
     Moon at perigee
16 Sun Moon 0.85 deg N of Aldebaran
17 Mon
18 Tue Moon 5.6 deg S of Venus
19 Wed Jupiter at perihelion — 4.9504 au from Sun
     Star Wars Episode I opens
20 Thu * GNTO Mtg.
21 Fri * UNM Call hotline to confirm
     First quarter 11:33 pm
     Moon occults Regulus @~10:10 pm
22 Sat * Astronomy Day (Coronado Mall)
23 Sun
24 Mon
25 Tue Mercury at superior conjunction with Sun
     Juno @ opposition
26 Wed
27 Thu * Board Mtg.
     Mercury @ perihelion -- 0.3075 au from Sun
28 Fri * UNM Call hotline to confirm
29 Sat * General Meeting, 7 pm, Regener Hall
     Moon at apogee 63.7 earth-radii at 2 am
30 Sun Full Moon (12:40 am)
     Pluto @ opposition (6 pm)
31 Mon

Sunrise / Sunset (MDT)
For Latitude 35.08, Longitude 106.65 (Albuquerque, NM)
Sunrise = upper limb on horizon
Sunset = upper limb on horizon

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Planet Rise (05/15/1999, MDT)

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June 1999

1 Tue
2 Wed
3 Thu  Neptune 0.7 deg from Moon
4 Fri  * UNM Call hotline to confirm
       Uranus 0.5 deg from Moon
5 Sat  Mars stationary in RA
6 Sun  Last quarter Moon at 10:20 pm
7 Mon
8 Tue
9 Wed  Jupiter 4 deg. from Moon
10 Thu  Saturn 3 deg. from Moon
       Venus is "half full" as seen from Earth
11 Fri  * UNM Call hotline to confirm
       Venus at E elongation
12 Sat  * GNTO
       * Chaco Canyon
       Moon at perigee, 56.2 earth-radii @ 7 pm
13 Sun  New Moon at 1:03 pm
       Equation of time = 0 at 12 noon
14 Mon  * Elephant Butte
15 Tue  * Elephant Butte
       Mercury 4 deg from Moon
       Earliest sunrise
16 Wed  * Elephant Butte
       Venus 2 deg from Moon
17 Thu  * GNTO Mtg.
18 Fri  * UNM Call hotline to confirm
       Regulus 1 deg from Moon
19 Sat  * Oak Flat
20 Sun  First quarter Moon at 12:11 pm
       Father's Day
21 Mon  Summer Solstice at 1:49 pm
       Sun enters Gemini
22 Tue  Mars 6 deg. from Moon
23 Wed
24 Thu  * Board Mtg.
25 Fri  * UNM Call hotline to confirm
       Moon at apogee, 63.6 earth-radii at 9 am
26 Sat  * General Meeting, 7 pm, Regener Hall
       Messier born 1730
27 Sun
28 Mon  Full Moon at 3:37 pm
       Mercury at east elongation
       Latest sunset
29 Tue
30 Wed  Neptune 0.6 deg. from Moon

Sunrise / Sunset  (MDT)
For Latitude 35.08, Longitude 106.65 (Albuquerque, NM)
Sunrise = upper limb on horizon
Sunset = upper limb on horizon

06/01/99  5:54 / 20:15
06/15/99  5:52 / 20:22
06/30/99  5:55 / 20:25

Planet Rise (06/15/1999, MDT)

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<td>Pluto</td>
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NOTES:
* = official TAAS Event
GNTO=General Nathan Twining Observatory. Call Gordon Pegue @ 332-2591 to confirm.
UNM=UNM Observatory observing nights. Call the TAAS Hot Line to confirm @ 296-0549
ATM=Amateur Telescope Making. Call Michael Pendley for information @ 296-0549.

Beth Fernandez Named National Young Astronomer
by the Astronomical League
by David Blair

TAAS is very proud of one of our members, Beth Fernandez, who has already distinguished herself time and again through science-fair projects. In March, the Astronomical League named Beth its National Young Astronomer. Here are excerpts from a letter from the League's vice president, Robert L. Gent:

Dear Beth:

On the behalf of the 16,000 members of the Astronomical League, I would like to congratulate you for your outstanding achievement. You are the first place winner of the National Young Astronomer Award! Out of dozens of applications we received from across the United States, our judges had six finalists to rank, and you were their top choice.
You have won an all expenses paid trip to ATROCON '99, our national convention in Cheney Washington, this summer. We would like to invite you to give a short talk about your project, Active Galaxies in the Perseus Supercluster.

You will receive a computer-controlled Meade 10 inch LX-200 Schmidt-Cassegrain Telescope valued at about $3,500. This prize was made possible by the generosity of the Meade Instruments Corporation. We will also present you with a beautiful, NYAA first-place hardwood plaque at our banquet.

In addition to other prizes, you will receive a lifetime pass to The University of Texas McDonald Observatory. This award enables you to share telescope time with professional astronomers at the observatory. You are only the eighth person ever to win this prestigious award.

Congratulations again on your superb achievements.

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**Presidents Update**  
*by David Blair*

We've turned up the volume at our general meetings. That's a reference to the microphone and speaker that we got going at our March 27 meeting—but there's more.

We're also enjoying a spring full of dynamic, cutting-edge speakers, led off at that meeting by Dale Frail from the VLA—but there's more.

Our young members are getting into the act. Beth Fernandez and Daniel Appel both faced that March 27 audience with grace and confidence. Beth is getting plenty of press (see the lead story in this issue of The Sidereal Times), and we'll be hearing from her again on May 1, so here I'll concentrate on Daniel.

Daniel recently completed a first-rate science fair project. It was in chemistry, so you won't find Daniel among our astronomy-project winners from the science fair. But if you think interdisciplinary study is strictly the turf of graduate students and researchers, think again. Daniel told us how modern compounds can be used, among other things, to collect dust from comets.
My broader point is that I'm delighted to see participation by talented young people in TAAS activities. A few more that come to mind are Jon Pendley and Shayna Lockwood, active docents at our school star parties.

Youth is the healthiest trend I can think of for a growing, maturing organization.

* * * * *

Meanwhile, back at the governor's mansion, Gary Johnson has signed into law House Bill 39, the New Mexico Night Sky Protection Act, which regulates lighting to reduce degradation of the night sky from ill-directed commercial lighting. As sponsor Pauline Gubbels acknowledged when she addressed our general meeting in February, there were compromises which weakened the measure, but she also sees it as a start. Sessions to come can build on what is already there.

TAAS, a chartered nonprofit, stays out of politics organizationally. In other words, we don't hire lobbyists and purchase billboard space (particularly on billboards with lights directed skyward). But can we petition our government as individuals? Folks, let me refer you to the First Amendment of the U.S. Constitution! I spoke my mind and so did others in the Society.

I also had the pleasure of meeting in Santa Fe with other who did much more than I in support of the legislation, among them Lee Mesibov, Joe Sovick, and John Buting. They are keeping alive a network for people interested in dark-sky issues.

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**Constellation TAAS**

*by David Blair*

To keep TAAS members up to date on what is happening with OUR Stars.

**Awards**

TAAS has honored five Society members with its new Service Award and two others with its annual Isengard and Dobson Awards.

Robert Ortega, director of the Society's General Nathan Twining Observatory, won the Isengard Award for 'generous contributions and a sustained willingness to share his hands-on talent and time.' Robert has seen the observatory through upgrades and electrification.
Lisa Wood, 'whose enthusiasm for the night sky has touched thousands of New Mexico schoolchildren,' received the John Dobson Award for Excellence in Public Education. As TAAS's education coordinator, Lisa has organized and executed scores of school star parties.

Winners of the new service award, also to be given annually, were:

Kevin McKeown, a former TAAS vice president and secretary, who remains very active as a board member, docent, and writer—in particular, author of Skywatch, which appears daily on the Albuquerque Journal's.

Elinor Gates, TAAS's first web master, who also served as secretary, treasurer, UNM liaison, and speaker.

George Pellegrino, TAAS's current vice president and former president, who was a dynamic force behind TAAS's incorporation.

Art Jacobs, who helped develop TAAS's outreach program and participated in the construction of GNTO, both in the early years of TAAS's incorporation.

Gordon Pegue, a board member of long standing who has served as GNTO director and treasurer, and who serves frequently as a docent at TAAS events.

Congratulations to all seven. Their efforts have made and kept TAAS the strong organization it is today.

And I blush to admit . . .

. . . that I have no current address for Art Jacobs. Can anyone help me fill out the shipping label for the award plaque?

A Site for SOR Eyes

During our tour of the Starfire Optical Range, Sharon Rogers of the SOR sang praises about our web page, which she had recently visited for the first time. She's added a link from the SOR web page—wwwsor.plk.af.mil—to ours. Thank you, Sharon, and take a bow, TAAS Web Master Mike Pendley!

GNTO Stats

Using a Trimble GeoExplorer GOS unit (with jitter correction data), Peter Eschman determined very precisely the location of General Nathan Twining Observatory:

\[
\begin{align*}
106^\circ & \ 50' \ 44.1'' \ W \ (106.8456) \\
34^\circ & \ 31' \ 19.9'' \ N \ (34.5222) \\
1,533.1 \text{ meters (HAE)} & \ (5,298.56 \text{ ft.})
\end{align*}
\]
HAE means height above ellipsoid, not quite the same as sea level.

Meanwhile, Gordon Pegue and I determined the focal length of the Isengard telescope to be 2,428 millimeters. The diameter of the primary is 402 millimeters, making it an f/6.04 system.

Thanks, Gordon and Peter.

Random Acts of Kindness

Barry Spletzer (remember the masterpiece woodwork on his dob?) constructed a sturdy and beautifully finished tripod for GNTO’s 3-inch refractor. This instrument, formerly a guide scope on the Isengard, stands available for loaner use at GNTO. It has dreamy optics and now has the gams to match. Barry donated the materials as well as his time. Many thanks.

News Flash—TAAS’ newest member!

Just moments before I finished the newsletter a message came in from David Sukow. His wife Gretchen gave birth to their son Carl Daniel at 10:09 pm on Tuesday April 13. Carl is healthy and strong, weighed in at 7 lbs., 11 oz, and measured 20 inches. David reports 'With all due respect to those of you who have children or were at one time children yourselves, I can tell you with complete bias that Carl is the most beautiful, perfect little baby boy we have ever seen.' For you new members—David is a past Board member and past UNM Campus Coordinator. —ed.

Board Meeting

by Sam Lockwood

The April 1, 1999 Executive Board Meeting was called to order at 7:05 pm by President David Blair. Attending were George Pellegrino, Robert Williams, Gordon Pegue, Robert Ortega, Allan Green, Kevin McKeown, Katherine Blankenburg, Carl Frisch, Bruce Levin and John Sefick. Observers included Mike Pendley, Barry Gordon, Tom Pannuti, and Dave Siegel.

Minutes:

- Dave Blair announced that Sam Lockwood would not be in attendance and that Robert Williams would take the minutes for this meeting. Dave deferred the reading of the February 25th minutes until the next meeting.

Treasurer's Report:
• Robert Williams distributed and read the Treasurer’s Report to the board. Education Funds on deposit were $2,110.61. Observatory Funds on deposit were $7,843.42. General Funds on deposit were $1,316.86. Total Funds on deposit were $11,270.89.

Observatory Committee Report:

• Robert Ortega reported that the observatory committee had met and discussed the priority list that they had produced at past meetings, they organized the list and will be putting dollar amounts to different items to begin a budget of what will be needed to do the work that needs to be done. Robert Ortega also asked the board about purchasing some eyepieces for the Isengard, in particular he would like to get a 2X Barlow, 16MM Nagler, and a 9MM Nagler. Robert Williams made a motion to give Robert Ortega $600.00 to purchase the needed eyepieces, seconded by Bruce Levin voted on and passed. Robert Ortega will get with Allen Green to order the eyepieces from Nagler. Robert Ortega also discussed doing a plot plan for GNTO to plan out the future work more precisely. Carl Frisch announced that he has ordered the upgrade chip for the NGC Max. Bruce Levin said he would like to see some sort of plaque or sign on the scope or mount stating the donation information and date, the suggestion was given to the GNTO committee to work out details and take action. Robert Ortega also announced that Carl Frisch has been appointed Site Manager for GNTO.

Grants Committee:

• Allen Green said that he has been talking to some sources of donations, but they would like more detailed proposals for what the monies will be used for. The GNTO committee will discuss this issue and work out details.

EPPC Committee:

• The EPPC committee is looking at changing the wording in the EPPC amendment to the Bi-Laws and would like to remove the section that says the committee has to be formed at the January Board Meeting to read that the committee only has to be formed when some change is needed in the EPPC itself. George Pellegrino will write the proposed change and bring it to the next meeting for vote.

Calendar:

• Carl Frisch handed out the updated calendar. Barry Gordon asked if we could do the Placitas Star Party on November 13, 1999. Gordon Pegue moved to add the November 13th Placitas Star Party to the calendar, seconded by Robert Williams voted on and passed. Robert Williams said that New Mexico State Parks is still interested in having us do some more star parties at other state parks. Robert Williams has spoken with them and made a motion to add a Bluewater State Park star party on August 7, 1999 to the calendar, seconded by Gordon Pegue voted on and passed. Carl Frisch also stated that Elephant Butte State Park has made arrangements with McDonalds to supply refreshments for the star party on April 10th Dave Siegel said that Sevilleta National
Wildlife Refuge between Belen and Soccorro will be having a open house on September 11, 1999 and is interested in having TAAS do a star party and other astronomy activities there, after discussion Gordon Pegue moved to add this event to the calendar, seconded by Robert Williams voted on and passed. Dave Siegel will take ownership of this event and further details will be coming.

**Past Events:**

- **Starfire**—Allen Green said that he had about 40 people and that everything went well. Because of ice on the dome they were not able to lower the dome, but they are interested in doing this again.
- **School Star Parties**—Every one who has attended the last school events have said they have gone well and we are drawing large crowds.
- **UNM Science Fair**—Bruce Levin and George Pellegrino said that they had a lot of fun in judging the projects and awarded two 1st place (1 senior, 1 junior) and 4 honorable mention(2 senior, 2 junior) awards. They will notify all awards winners and will invite them to set up their projects at a future meeting and for Astronomy Day.
- **Messier Marathon**—Kevin McKeown said that everything went well and even with the troubled weather at the beginning the night ended well.

**Future Events:**

- **April General Meeting**—Dale Frail is set to talk on Saturday. Dave Blair will announce that Beth Fernandez was awarded the National Young Astronomer by the Astronomical League.
- **May General Meeting**—is still being worked out but we may have Jack Drummond come in to discuss asteroids. Bruce Levin will talk to the UNM Science Fair award winners and see if they can bring there science fair projects to the meeting.
- **Mars Day (April 24th)**—Kevin McKeown said that we would not be able to get any large facility for this evening so after some discussion it was decided to hold Mars day at UNM Observatory.
- **Astronomy Day (May 22nd)**—Mike Pendley announced that everything is going according to plan for Astronomy Day. He and Dave Blair will meet with Coronado officials to sign contracts and work out details. Mike Pendley said that he had filled all the main positions for the day except that he needed some one to take on the set-up and clean-up portion of the day. George Pellegrino said that he would take care of set-up and Kevin McKeown volunteered to cover clean-up. Mike said that he needed to print new membership applications for Astronomy Day and asked about a student rate to be added to the form. There was some discussion on this matter and Gordon Pegue motioned to amend the Educator rate to read Educator/Student (Full Time Student) seconded by Robert Williams, more discussion on the matter Barry Gordon suggested we table the motion and form a committee to discuss the student rate and current dues. On the committee are Robert Williams, George Pellegrino, Robert Ortega, Bruce Levin and Dave Blair. Mike Pendley also said that he would like to have some patches made to give to the volunteers for Astronomy Day. Mike Pendley handed out some diagrams he had prepared of two patches for the board to review. Robert Williams motioned to give mike
$200.00 from the General Fund to order patches, seconded by Carl Frisch, voted on and passed.

Old Business:

- Asset Committee—George Pellegrino announced that thanks to the efforts of Sam Lockwood the committee has made good progress and should have some information for the next board meeting. Assets forms have been sent out and we are waiting for responses.
- Public Relations—Dave Blair said that he was suppose to meet with Bill Eisenhood but has not met with him yet.

New Business:

- Dave Blair announced that Jay Harden has taken on the tasks of UNM Campus Observatory Director for now.
- Katherine Blankenburg said that the Loaner Scope Program was in need of eyepieces and asked the board to purchase a 12 1/2mm and a 40mm for the program, after discussion it was decided to have Mike Pendley run a request in the Newsletter for donations.
- Gordon Pegue asked to have the Astronomical Association in Santiago Chile added to the complimentary newsletter list after discussion it was decided to send them the newsletter.
- Gordon Pegue then handed out a proposal to add some videos to the TAAS library, after some discussion it was decided to table the motion for the next meeting.
- George Pellegrino said that GNTO has a budget $100.00 to maintain the facility, he suggested that Robert Ortega look at this amount and see if it will do now.
- It was also decided to remove the June 5th Astronomy 101 from the calendar.

Newsletter assignments were made and the meeting was adjourned at 9:20pm.

These minutes will not be official until the BOD makes any needed corrections and accepts them on April 29—ed.

Observatory Committee
by Robert Ortega

No report this month

Last Month's Meeting Recap

April Meeting Recap—Gamma-Ray Bursts
by George Pellegrino
During the cold war, around the mid 60's, a satellite named VELA was spinning around the globe in an effort to detect nuclear testing by nations that might pose a threat to the 'West'.

On July 2nd, 1967 an anomalous 'spike' or burst of gamma radiation was recorded. This event marked the discovery of a phenomenon whose origin is somewhat of a mystery even today.

Since that initial detection, over 2000 events have been recorded—each lasting from a fraction of a second to minutes. Capturing one of these events in the act has been the Holy Grail of astrophysicists for over thirty years.

One of the world's leading researchers in the field of the gamma-ray burst (GRB for short) study is Dr. Dale Frail. Thanks to the efforts of Dave Finley, Public Relations Officer at the National Radio Astronomy Observatory in Socorro, Dr. Frail came to Albuquerque to speak at our April meeting.

In 1997, Dr. Frail used the Very Large Array (VLA) radio telescope west of Socorro to observe the first radio emissions ever detected from a GRB. The data collected with the VLA combined with optical data provided astronomers with their first real look at the physics of this mysterious phenomenon.

On January 23rd of this year, an event dubbed GRB990123 was captured by NASA's Compton Gamma-Ray Observatory satellite, the workhorse for burst detection. Unfortunately, this marvel of modern technology is only accurate to within a few degrees.

It was also detected by an Italian Satellite whose technology was twenty years old when it was launched! The equipment on board this satellite known as BeppoSAX was used to pinpoint the GRB event to within a couple of arc seconds.

Through an elaborate relay system using the Internet, the coordinates were sent to an automated array of four 200 millimeter telephoto lenses called the Robotic Optical Transient Search Experiment-1 (or ROTSE-1) located in Los Alamos, New Mexico.

Within 22 seconds of detection, history was being made. The first image showed an object at 12th magnitude. Twenty-five seconds later, it was at 9th magnitude.

Dr. Frail pointed out that ever since the first event was confirmed, the scientific community was baffled. What type of event could release such tremendous amounts of energy?

Using the VLA and data collected at other wavelengths, Dr. Frail's calculations provided some amazing facts. The energy released in 10 seconds \((3.4 \times 10^{16} \text{ ergs})\) rivals the
output of a million galaxies. The visible light from this event at its peak equaled the luminosity of $2 \times 10^{16}$ suns or a visual magnitude of -36.5.

Another question that plagued astronomers was the point of origin of these events. At first, it seemed that these events might be local, as in the Milky Way.

After the analysis of optical data from the 10 meter Keck II Telescope in Hawaii and the 2.6 meter Nordic Optical Telescope in the Canary Islands, it was learned that the red shift of this event was 1.6 or 9 billion light-years away!

In terms of how long this light was traveling toward earth, this event took place when the universe was quite young. According to prevailing theory, the universe was only 1/3 of its current age when the light from this GRB set sail. The earth wasn't even formed yet!

So what could be the progenitor of such an event. The Hubble Space Telescope (HST) took a look in the direction of GRB990123 on February 8th. The image acquired shows a 24th magnitude irregular galaxy.

Theories of what might put out such extraordinary amounts of energy range from the collision of two hyper dense neutron stars or a neutron star and a black hole. Another possibility might be a hypernova, the collapse of a giant star of about 20 to 30 solar masses into a black hole.

The jury is still out on these but they surely sound more likely than some of the others mentioned like aliens having a war and blowing each other up.

If you would like to see for yourself, it's possible to do so. The coordinates are right ascension 15h 25m 30.5sec, declination: 44deg 46min 46sec. It's a point about half way between the end of the Big Dipper and the Keystone of Hercules.

Too dim you say? In the May '99 issue of Sky and Telescope Magazine on page 126 is an article entitled 'Going The Limit'. Its about an amateur astronomer named Paul Boltwood who used a 16' Newtonian telescope with a homemade CCD camera to record objects as faint as 24.1 magnitude.

Our thanks to Dale Frail for sharing this cutting edge research with TAAS members. And to you deepsky-faint-fuzzy-wranglers out there, happy hunting.

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**Next Month's Meeting Preview**

**Dr. Neb Duric to Discuss Extrasolar Planetson May 1st**

*by George Pellegrino*

Our guest speaker at the May 1st TAAS general meeting will be Dr. Neb Duric—a professor of Physics and Astronomy at the University of New Mexico. His main research interests include the
search for extrasolar planets, the origin of cosmic rays and astronomical image reconstruction. He is also actively involved with teaching and public outreach.

The title of Dr. Duric's talk, 'Searching for Extrasolar Planets with Small Telescopes' will focus on two simple methods that bring the search for extrasolar planets to amateur size telescopes. One of the projects he will be discussing will describe how a telescope as small as 16' in diameter is currently being used for this purpose at UNM's Capilla Peak Observatory.

It is aimed at searching for companions to M dwarfs of spectral type M4 and later. It is a spectro-photometric method requiring the use of narrow band filters and a cooled CCD camera.

The second planet search he will describe utilizes the so-called 'transit' method. Using a CCD camera, stars are monitored photometrically with the goal of detecting small eclipses arising from the passage of a planet in front of a star's disk.

This project has the potential to involve amateur astronomers because of its relative simplicity. It can be carried out with a thermo-electrically cooled CCD camera and an amateur-class telescope.

As usual, a social hour will follow the meeting so don't forget to bring those goodies. See you there.

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**Observer's Page**

*by Kevin McKeown*

**May Musings**

May seems to be the month for exams, and indeed, there are many excellent naked eye star tests that challenge the observer this month. For me personally, many of these tests were described in a long lost observing guide I used at a very early age. To this day, this romanticism compels me to recheck these tests in May's night sky. The star tests fall into three classes. Group I tests the observer's visual acuity. Group II objects test the darkness, or quality of the observer's sky. Group III are tests that combine both great skies, and great eyesight. I recommend that you dark-adapt your eyes for perhaps one hour before you try these tests.

Let's start with Group I objects. One of the better tests for the naked eye observer is Mizar, the middle star of the handle of the Big Dipper. Mizar has a faint companion called Alcor, located about one third of a moon diameter (about 10 arc minutes) to the east. Can you detect Alcor? Persons with uncorrected myopic and/or astigmatic vision won't pass this test, but it is pretty easy with normal vision. A millennia ago, it was said that the ability to split Mizar and Alcor was the proof of truly keen eyesight. Alcor derives from Arabic for 'the proof' of CORrect vision. Mizar and Alcor probably form a visual double—they are not a true pair. It seems Alcor is nearly in the line of sight with Mizar, and divergent proper motions perhaps widen the pair to make the test easier with each passing century.
If you’ve passed the Alcor test, can you split epsilon 1 and epsilon 2 of Lyra with the naked eye? Epsilon 1, 2 is the famous double, and the major components, each of 4th magnitude, are separated by 208 arc seconds. Epsilon Lyra is high up by 1 a.m. Tell us if you’ve passed this test—it’s not easy!

The next test is really remarkable. With the unaided eye, can you detect the green color of beta Libra? I wrote about this curiosity several years back, and it’s time for a retest. Purportedly, this is the only true green star in the night sky. With dark-adapted eyes, inspect beta closely. Years ago, beta did shine like an emerald to me, but today, my ever present slight near-sightedness always blurs the star, such that the green—or blue tint—of beta goes unseen. Actually, in binoculars, beta does look greenish. However, beta has the same spectral class as Rigel. Does Rigel look green to you (I don’t think so). See what you think. Some other star color tests for May include Arcturus (topaz), Antares (orange), and Spica (clear blue). However, detection of star colors is problematical, and subjective. Spica, of Virgo, has a rich bluish tint most take for granted. When orangish Mars passed near Spica during winter ’99, only then did I realize how bluish Spica really is—to the naked eye! The contrast was amazing!

May seems to offer the best Group II tests of the year. Some good ones include the visibility of the Coma Berenices cluster in city skies. Also, try for the Beehive of Cancer, the Crab. High clouds or light pollution will hide this cluster. Another good sky test for May is omega Centauri, seen low along the horizon in mid-evening during May. From GNTO, omega is an easy naked eye object, despite its low altitude. Another delicate test: as Scorpius nears culmination later in the night, try to observe the great Ara-Norma star cloud located southwest of the scorpion's tail. Yet another Group II test is best taken when the north pole of the Milky Way galaxy stands overhead in late evening- and the Milky Way itself dwells along the horizon every where. When this occurs, can you detect the zodiacal band, a narrow, glowing belt of light which is centered on the ecliptic? Zodiacal light, the zodiacal band, and the gegenschein are glows that result from light scattered off dust in the solar system.

May might offer the best tests that combine visual acuity and clean black skies: Group III. In early May, at nightfall, take a look at the Beehive cluster of Cancer, the Crab, as it stands high up in the west. Can you detect individual stars with the naked eye? I've never been able to, but there are claims that suggest it can be done. Another Group III test is the Coma Berenices cluster. How many of its stars can you detect under the best skies?

However, the best Group III tests of May involve the detection of several Messier globular clusters with the unaided eye, under fine skies. Messier 13, in Hercules, is the first hurdle. While difficult, it can be detected from GNTO. Next, try for Messier 5, in Serpens. You'll need a good star atlas, such a Tirion's, because M 5 lies amongst a handful of 5th and 6th magnitude stars. But it is only slightly less fainter than M 13. Next, try for globular Messier 4, located just northwest of Antares. If you get M 4, both you and your skies are good! Good luck!

GNTO, April 10, 1999

Dave Blair attended this Saturday night, and he relates that about a dozen observers showed including Gordon Pegue, Alejandra Valderrama, Robert Ortega, Pete Eschman, and Jeff Bender,
among others. Mars was viewed in many different scopes, and Dave reports that Mare Erythraeum and Mare Acidalium were visible. With his 6-inch reflector, Dave also continued work on his Sky Survey. He reports the 'discovery' of a 2.2-degree wide starless patch, as indicated in Uranometria. (Uranometria plots down to magnitude +9.5.) This starless patch is centered on RA 11 hours 28.4 minutes, DEC +4 degrees 54 minutes. Dave checked this patch with the 6 inch and reports that at least 100 stars reside there! Amazing!

Elephant Butte, April 10, 1999

Some of us (Carl Frisch, Robert Williams, Jim Rowse, Rebecca Stoneman, Mike Pulsis, and Sam Norris) attended Elephant Butte. The potluck was great, and the invited crowd was pleased with the talks, and slide show. However, observing was mediocre because of extensive high clouds. Never the less, Mars put on quite a show. In addition to the marae observed by Dave at GNTO, it seems that Mars was showing some remarkable weather that included either high clouds, or ground fogs. The planet looked quite cold and icy to me, despite the fact that Mare Acidalium is a prominent dark feature. BTW, unfortunately for TAAS, Mike and Sam mentioned that they are moving to the Chicago area.

TAAS 200

May is a good time to investigate the extensive Coma-Virgo galaxy field. The TAAS 200 includes many fine, bright galaxies Messier did not log. First, Sa galaxy NGC 4030 is located in SW Virgo, well outside of the heart of the field. This small but bright Sa galaxy has a broad core, and it lies amongst 2 field stars.

Next, move closer to the core of the Virgo cluster, and locate NGC 4216. This galaxy is not far from the M 98-99-100 group. This is a large, beautiful edgewise spiral with a bright core. Take the time to recover the nearby fainter Virgo galaxies.

Next, move into the core of the Virgo cluster. Very close to M 86 is the double galaxy NGC 4435-4438. These are the famous 'Eyes' of the Virgo cluster. We formed the Eyes into one TAAS 200 object. The Eyes consist of two ovalish nebulae nearly touching. One eye is brighter, and larger, and this always suggests to me that these are the eyes of some cartoon character!

Lastly, close to M 49 are two bright galaxies: NGC 4526 and NGC4535. The first, NGC 4526, is a small, bright, oval galaxy with an outer haze. It contrasts greatly with the more face on barred spiral NGC 4535, which shows as a large, grainy, oval patch. I should note that these TAAS 200 galaxies—in addition to many of the other fainter galaxies near the TAAS 200 galaxies—qualify as Herschel 400 galaxies, so spend the time to recover them!

_____________________________________________________

What's Up for May 1999
by Kevin McKeown
I eta Aquarid meteor shower this year, but some Aquarids might be seen in the hour before dawn on May 6th. This is a tough shower for the northern hemisphere to observe.

On May 11th, Venus reaches its northern most declination: +26. Hence, the brightest planet continues to set well after nightfall.

On the evening of May 21st, a very fine occultation of Regulus occurs. Here's your chance to see another of the first magnitude stars occulted.

Lastly, asteroid #3 Juno is at opposition on May 25th in Ophiuchus.

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*Ask the Experts*

by David Blair

*Bruce Levin was unable to write an 'Ask the Experts' column this month. However, David Blair submitted an excellent piece that fits this column nicely.*

**How can I measure the focal length of my mirror accurately?**

An amateur telescope maker usually measures the focal length of a mirror mechanically during Ronchi or Foucault testing. I used an old-fashioned steel tape to determine the focal length of the 15-centimeter mirror I made in Mike Pendley's ATM class: maybe 855 millimeters, maybe 860. I wasn't about to ding the mirror with the end of the steel tape, so the figure stayed rough for the time being.

When the telescope was finished, though, I used star drift to arrive at a figure more than ten times as precise. This time I used a stopwatch, a reticle scale, and the oldest measuring device of all—the spinning Earth.

You already know what a stopwatch and the spinning Earth are, but what about the reticle scale?

It's a tiny ruler placed at the focal plane of an eyepiece. Meade and Celestron both sell eyepieces with fine, reticle scales laser-etched onto glass and illuminated by LEDs ($120 and $189,
respectively). I used Celestron's 12.5-millimeter Microguide, which has a 6-millimeter scale with ticks every tenth of a millimeter.

The February 1999 Sky & Telescope shows the eyepiece (needlessly modified) on page 117. The reticle has lots of useful measuring jazz, but it's the scale that comes in handy here.

This past fall, I put the eyepiece into my newly constructed optical tube and pointed it at Mirach, also known as b-Andromedae.

I turned on the reticle and brought the star into sharp focus. Quite a sight—a distant star and a diminutive measuring stick sharply focused together. Microscope and telescope juxtaposed.

At that point the little ruler sat in the focal plane of not only the eyepiece, but the primary—that is, the new mirror with the imprecisely known focal length.

There's no clock drive, folks, so imagine the star drifting across that little scale, tick by tick. How long will it take?

Hmmm. It depends on the scale of the image, doesn't it? If the image is very large the star will cross the scale rapidly. If the image scale is small, it will take longer.

And what determines the image scale? The focal length of the primary, of course!

It's important to remember that the focal length of the eyepiece is not a factor here. The length of the scale is absolute: there's really a tiny scale 6 millimeters long inside the eyepiece. The lenses of the eyepiece magnify it so that it can be seen well, but beyond that, they won't enter the mix.

Okay, so far I didn't know my focal length precisely, but consider the things that I did know with great precision:

- the length of the scale (Did I mention it's 6 millimeters?)
- the rate at which the Earth turns (Remember that I was working with sidereal rotation, 360 degrees every 23 hours, 56 minutes, 4 seconds.)
- and the declination of the star. (Every Astronomy 101 grad knows that Mirach is 35º 37' 14" north—right, Robert?)

Next, I reached for the stopwatch so that I could get a fourth precise figure: the length of time it takes Mirach to cross the scale.

Once I knew that, it was possible to factor in the declination of the star (the further a star from the celestial equator, the slower it drifts) and convert the 6 millimeters into an angular measure. Once I knew the angular equivalent of 6 millimeters, I could apply a little trigonometry to yield the focal length of the new mirror.

Could, but didn't.
Truth is, Celestron had already baked all these factors together, and they shipped a neat little formula that came with the eyepiece. Here it is:

Where $f$ is the focal length in millimeters, $t$ is the time in seconds that it takes the star to cross the scale, and $D$ is the declination of the star, then

$$f = \frac{82506}{(t \cdot \cos D)}$$

Remember, though, that this formula applies only to the 6-millimeter scale. (Challenge to Society math wizards: Can anyone check the Celestron formula and then come up with a general formula?)

What I did bother doing was a long series of timings, which I average to really $t$ precisely.

I started by meticulously aligning the scale east-west. Very helpful was my classic equatorial mount. Since it suffers no field rotation, I had to align only once. Thereafter, repeated timings were easy.

I averaged 20 timings for Mirach (throwing out those that strayed suspiciously), and then repeated the exercise by averaging 21 timings of Hamal. This yielded a significantly different $t$, since Hamal has a different declination. The proof in the pudding would be whether my two $t$'s would yield the same focal length when run through the formula.

Here's the data (*values in italic were discarded*):

Mirach: $D = +35^\circ 37' 14''$, $\cos D = .81289$
Hamal: $D = +23^\circ 27' 45''$, $\cos D = .91732$

<table>
<thead>
<tr>
<th>Trial</th>
<th>Mirach</th>
<th>Hamal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>118.00</td>
<td>104.65</td>
</tr>
<tr>
<td>2</td>
<td>118.25</td>
<td>104.81</td>
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<tr>
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</tr>
<tr>
<td>12</td>
<td>118.06</td>
<td>105.28</td>
</tr>
</tbody>
</table>
Average t for Mirach 118.24 sec.
Average t for Hamal 104.76 sec.

I plugged the averages into the formula, and here's what I got. The focal length according to Mirach: 858.40 millimeters. The focal length according to Hamal: 858.56 millimeters. The figures disagree by only one-sixth of a millimeter, so I feel confident in declaring my focal length to be 858.5 ± 0.2 millimeters. With the assistance of Gordon Pegue, I used the same method to measure the focal length of TAAS's newly restored Isengard Telescope. This is the main instrument at GNTO, and it's generally considered to be a 16-inch, f/6—so the estimated focal length is 96 inches, or 2,438 millimeters. In fact, we arrived at a figure very close to that: 2,428 millimeters.

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The
Kids' Corner

by Barry

Planning a Move?

If you are planning to move to another planet, here are some important points to think about before you go.

If you move to Mercury:
The good part is you will have more birthdays since it takes only about 88 days for Mercury to go around the sun. The bad part is it's the closest planet to the sun, and it's very hot on the sun side and very cold on the other side.

Venus:

The bad part is it has clouds made of battery acid, which is the same stuff that leaked out of my game boy once. The good part is you would never get cold since it's about 900 degree F all the time.

Mars

The good part is it would be neat to live on an orange planet. The bad part would be you couldn't see during the dust storms.

Jupiter

The good part is it has so many different colors. The bad part is you wouldn't survive if you got stuck in the big red spot, which is a storm.

Saturn

The good part is you could watch the collisions of the rocky icy ring pieces, like bumper cars. The bad part is you couldn't stand on the planet since it has no solid surfaces (like all the gas giants)

Uranus

The good part is there is no solid surface, so the schools keep sinking in. The bad part is unless you lived to be 84 years old, you'd never have a birthday party.

Neptune

The good part is with 1400-mph winds, you could fly. The bad part is your kite would be shredded.

Pluto

The good part is there's lots of ice to go skating on. The bad part is the ice might break!

ATM Corner

by Michael Pendley

No report this month
Star Myths
by Robert Williams

No report this month

UNM Campus Observatory Report
by Mike Pendley

No report this month

Docent News
by Lisa

We're coming Òround the bend this year—Collet Park Elementary went well, and our school star parties will be completed for this season with May 3 (Alamosa) and May 12 (Algodones). TAAS has enjoyed excellent participation and the docents have brought the night sky to somewhere in the neighborhood of 3000 kids and their parents this year. I cannot express how proud I am to work with these skilled explorers of the stars. TAAS will honor these docents in an upcoming meeting—although no award can even come close to matching the time, skill and effort these docents have expended.

Here are some things I have learned this year about giving a big star party:

1—'Expectation Management' is everything. Not a term a housewife like myself often has to use, but all important with star parties. Participants need to know what to expect, such as, will they actually get to 'use' the telescopes, or just look? What will occur in case of bad weather?

2—It's helpful if the participants know that our docents are unpaid. In our society of consumerism and high expectations, people are just more friendly and relaxed if they understand that we're all out to have a good time, and that no 'money back guarantees' are offered if clouds happen to be covering the ecliptic that night.

3—Parents need to come to this event WITH their children. Our docents are more knowledgeable about stellar nurseries than the human kind.

Docent Calendar

May 3—Alamosa Elementary

May 12—Algodones Elementary
August 1—STAR PARTY BOOKING FOR THE NEW YEAR BEGINS. E-mail me at astroids@aol.com. I expect the entire year to be booked within the week, so contact me early. We will book only 2 'out of Albuquerque' parties for next year—so this is your heads-up!

**Thanks from Queen of Heaven**

I wanted to send a huge thank you to you and your group. Teachers, parents, and students have all told me what a wonderful time they had last night. Even my cynical 8th graders had a great time! I had students write letters today, which I will mail out to you tomorrow.

Is it too early to get on next year's calendar?

Thank you—Susan

**Thanks from Collet Park**

Collet Park PTA would like to thank TAAS for a great family night star party. We estimate between 250 and 300 people enjoyed the slide show, telescopes, and planetarium.

I personally assisted with the five planetarium shows given by David Blair (as ticket lady) so I know at least 150 people passed through (the first four shows held 30+ people and the last show held 20).

I was unable to attend either of the two slide shows Robert Williams gave but I heard they went very well.

PTA was happy to provide pizza and sodas to the docents that were kind enough to give up their Thursday evening—Dave Blair; Robert Williams; Robert Ortega; Ruth, Mike and Jon Pendley; Bruce Levin; Sam and Shayna Lockwood; and Barry Spletzer.

Thank you again.

Debbie Pendley
PTA 1st VP

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**Astronomy 101**

*by Robert Williams*

No report this month
Astronomical Computing
by Michael Pendley

No report this month

Internet Info
by Michael Pendley

No report this month

Chaco Canyon Observatory
by John Sefick

G.B.Cornucopia has returned from his winter trip to Washington and completed the first amphitheater program at the observatory. In this case, the amphitheater consists of a large bench area to the east side of the computer building. The program was well received and approximately 60 visitors participated in the slide show presentation. At night the surrounding cliffs and terrain make this a great backdrop for a presentation. If any members have talks or presentations they want a forum for I am sure arrangements can be made at the observatory. The telephone number is 505 786-7014 or e-mail G_B_Cornucopia@nps.gov.

A preliminary supernova-hunting program also has been initiated at Chaco with the help of a group supernova hunters on the Internet. We are monitoring 11 galaxies in the Virgo Cluster for supernova. These relatively close galaxies are of special interest to professional astronomers as yard sticks to the universe. We had a few potential candidates but they proved to be image aberrations and not the real thing. This participation will continue to the end of May. All the work was done with the Compustar 14” and the ST-6 camera.

A 'shareware program' is in the early stage of development between TAAS and Chaco. An award of $2500.00 dollars will be received on April 21,1999 at the White House Visitor Center sponsored by the National Park Service for the educational partnership between TAAS and Chaco. Hillary Clinton will be the keynote speaker. The idea Carl Frisch and I have is to purchase an adaptive optics device from part of the award money. The device will be used to collect a database of images for both the Twining and the Chaco observatories. This equipment is expensive and this seems to be a logical way to go.

April Trivia Question
In 1985, a starlike, flashing object that was, for a time, considered the optical counterpart of a GRB (gamma-ray burst) was observed in the constellation (a) Orion; (b) Perseus; (c) Lepus; (d) Lupus? The object turned out to be (a) satellite glint; (b) dwarf nova; (c) aircraft lights?

The winner of the April trivia contest was Daniel Appel.

Answer

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**TAAS to Tour Starfire Optical Range**

_by Allan Green_

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**Messier Marathon Recap**

_by Gordon Pegue_

The Albuquerque Astronomical Society held its annual Messier Marathon Saturday night March 20, 1999 at the society's General Nathan Twining Observatory. The evening began on a somewhat windy note as a breeze developed just before sunset. The wind dampened spirits a little bit but plenty of food and camaraderie helped everyone who attended hold out until the wind died away. The wind finally died away about 9 PM and the race was on. We had about 40 observers and of those 40, 7 managed to last the night. Results were as follows:

- Kevin McKeown 108 objects
- Gordon Pegue 108 objects
- Pete Eschman 107 objects
- Anna Whitlow 106 objects
- Alex Comportie 105 objects
- Mike Pendley 101 objects
- Larry Cash 50 objects

The first two folks were not able to recover M74 or M30. M74 because of wind, low clouds on the horizon and moonlight and M30 because of advancing daylight. Both Kevin and Gordon failed to see M30 even though Gordon's 20" scope was targeted properly. 'Too much daylight!' Gordon was heard complaining. Oh well, there's always next year!

Thanks to all who made this years event a success: Carl Frisch, Robert Williams, Robert Ortega and Kevin McKeown.

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**Oak Flat**

_by Carl Frisch_
This year TAAS will be doing only four star parties at Oak Flat picnic ground. They will be on May 15, June 19, July 17, and Aug 14. (The TAAS annual picnic will be held at GNTO this year by popular demand.) But don't let that stop you from attending some of the best get togethers of the summer. The picnic grounds will be open several hours before sunset for those who would like to picnic or just set up early. If you're new to the society or to observing this is an excellent opportunity to get to know folks and see some nice scopes.

Co-sponsored by the Sandia Forest District and the friends of Tijeras pueblo, this marks at least the sixth year of TAAS star parties at Oak Flat. To get there, take I-40 about 10 miles east of Albuquerque to the Tijeras exit. Go south on Hy 337 (old S-14) for about 8 miles and watch for the Oak Flat sign. Turn left for about a mile gets you there. If you have any questions feel free to call the Forest Service office at 281-3304.

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**Astronomy Day '99**

by *Michael Pendley*

Not much to report except that plans are proceeding well and that we will have essentially the same format and exhibitors as last year. We still need volunteers to help though.

The Board authorized the creation of an official Astronomy Day patch. A B&W version is shown above and a color version can be seen at the TAAS web site. To get a free patch you have to help.

A list of who is coordinating which activity can be found in the [BOD Meeting](#). Contact the coordinators directly or contact me directly if you are interested.

In any case I hope to see you on May 22 at Coronado Mall. The event will run all day.

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**Space Day '99**


This year Galileo will make an appearance. That is, a scientist / actor dressed in appropriate period clothing will provide the public the opportunity to ask Galileo questions about his life and work. The show is rumored to be quite excellent.
Most shows are reserved for school children that will be visiting that day but a special show for the general public is currently set for 11:30.

Please contact Virginia Salazar if you would like to know more about Space Day or the appearance by Galileo. Virginia's telephone number is (505) 284-3223. Her e-mail address is vasalaz@sandia.gov.

We need Eyepieces!!!

The TAAS Telescope Loaner program is in need of eyepieces. Many telescopes have a poor selection and some have none at all. Please look through your eyepiece cases and junk boxes and consider donating those eyepieces you never use. Contact Dee or Jason (page 15) or any Board Member for more information.

1999 Broline Science Fair Awards

by Bruce Levin

On Friday, March 19, 1999 Bruce Levin and George Pellegrino had the honor and privilege to judge the 40th Annual Northwestern New Mexico Regional Science and Engineering Fair on behalf of The Albuquerque Astronomical Society. TAAS will present one first place award each for the Junior and Senior divisions, and two honorable mention awards each for the Junior and Senior divisions at the Saturday evening, May 1, 1999 general meeting.

The Senior Division First Place Award winner is Elizabeth R. Fernandez for her project, 'Active Galaxies in the Perseus Supercluster'. Elizabeth is a senior at St. Pius X High School in Albuquerque and has been an active member of our Society for the last several years. Elizabeth has written several articles for the Sidereal Times and she and her family are frequent participants at our general meetings and events.

The Junior Division First Place Award winner is Mary E. Spulak for her project, 'Measuring the Debris from Comets and Asteroids'. Mary is a 7th grader at St Mary's School in Belen.

The Senior Division Honorable Mention Award winners are Sengdahan V. St. John for her project, 'The Solar Apex: Random Motion of Our Sun', and Nathan H. Cole for his project, 'The Moons of Jupiter'. Sengdahan is a freshman at Sandia High School in Albuquerque, and Nathan is a freshman at Albuquerque High School. Sengdahan also was a science fair award winner last year and a member of TAAS.

The Junior Division Honorable Mention Award winners are Ryan D. Sleeter for his project, 'Measuring Cosmic Rays Using a Cloud Chamber', and Tara A. Ransom for her project, 'Observations of the Moon'. Ryan is a 6th grader at Roosevelt Middle School in Albuquerque, and Tara is a 6th grader at Eisenhower Middle School in Albuquerque.
Elizabeth and Mary will each receive an award certificate, a check for $100, and a one-year free membership in TAAS (priceless). Sengdhuan, Nathan, Ryan, and Tara will each receive an award certificate and a one-year free membership in TAAS.

The projects by Elizabeth, Sengdhuan, and Mary were further recognized by the general science fair judges of being worthy of merit for the next or state level of competition. They will be taking their projects to the New Mexico State Science and Engineering Fair in Socorro, New Mexico. Way to go!

These Special Category Science Fair Awards are given in memory of the late Col. Leonard Broline for the best Astronomy related projects at this annual science and engineering fair. Leo was an active member at Society meetings and Star Parties. The Broline awards were established by the Society in 1996 to honor the special education fund contribution given by Claire in the memory of her husband.

In addition to the general meeting, the winners are being invited to exhibit their projects at Astronomy Day on Saturday, May 22, 1999. Congratulations go to these science fair award winners for their hard work and effort. We wish them good luck and success in further competitions, projects, education, life contributions, and goals!

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**Trivia Answer**

Perseus, satellite glint

[Back to trivia]

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**Letters to the Editor**

**Project Astro**  
*by Victoria Wiggins*

The goal of Project ASTRO-NM is to improve astronomy literacy through fundamental changes in the way it is taught. To accomplish this goal, teachers (in grades 3 to 9) are paired with amateur or professional astronomers, or graduate students for one school year.

Partners will attend a workshop at the National Solar Observatory in Sunspot at the beginning of the school year. This workshop will focus on two areas: (1) helping partners begin their planning process through guided activities and free time, and (2) introduction of activity-based curriculum found in Universe At Your Fingertips, a resource manual produced by the Astronomical Society of the Pacific. In addition to the resource book, partners will receive a tub of materials to use in the classroom to reproduce the activities learned in the workshop.
After the workshop, astronomers will visit the classroom a MINIMUM of four times during the school year.

Astronomers are housed free of charge in Sunspot during the workshop, with meals provided. Teachers are expected to have the support of their school administration to pay for one day of substitute teachers, as well as housing and meals during the workshop. (Teachers will stay in Cloudcroft.)

We are seeking 3 astronomers and 3 teachers from the Rio Rancho area and are requesting your help. If you know of either teachers or astronomers/grad students that would be interested in participating in this program, they can call the Space Center education department at 1-800-545-4021. Ask for Victoria or Shannon. I can also be reached by e-mail at vwiggins@zianet.com.

Victoria Wiggins
Public Programs Manager

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Student-Created Mars Experiment Wanted
*Kathleen Garner*

The Planetary Society is looking for a student-created experiment to send on the JPL/NASA Mars Surveyor 2001 Lander mission. Could you help us announce this exciting opportunity to young people 18 or younger (pre-college only) in your state? We need to let young people know that they can create an experiment that may be incorporated in the mission's Mars Environmental Compatibility Assessment (MECA) experiment package.

If you know of anyone—scientists, teachers or others—who could help spread the word about this terrific opportunity, please let them know that all the information about this project, called the NanoExperiment Challenge, is available through our Web site at [http://planetary.org/learn/nanoexp.html](http://planetary.org/learn/nanoexp.html). Application forms can be printed from the website and need to be returned by July 31, 1999.

In addition, I'm compiling a list of contacts for future educational opportunities involving space exploration (another out-of-this-world project will be announced in May) so if you would like to be kept informed please contact me, Kathleen Garner, at tps.kg@planetary.org. For more information about the NanoExperiment Challenge contact Jeffrey Oslick at (262) 739-5100 or by e-mail at: tps.nanoexp@planetary.org.

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The Night Sky Protection Act
*Stephanie Gainey*
*NMHPA Coordinator*
New Mexico Heritage Preservation Alliance was proud to join astronomy, environmental, and economic development advocates in the efforts to pass House Bill 39, the Night Sky Protection Act, through the New Mexico State Legislature. Because of the special attention given this legislation by private citizens and special interest groups alike, New Mexico has become the first state to initiate a statewide law to reduce light pollution—thus enhancing quality of life and promoting efficient energy practices.

The Night Sky is one of eleven places on the Alliance's List of New Mexico's Most Endangered Places. Each of the eleven places is threatened to be lost or diminish the rich heritage of our state. You may ask—is the Night Sky really endangered as a cultural resource? The Alliance believes the answer is Yes. The night sky has provided guidance, companionship and a window into the purpose of human existence for millions of years. Without conscious action, such as the Night Sky Protection Act, future generations will not experience the Night Sky as we have, letting yet another important element of who we are and where we come from slip away.

The Alliance is a statewide organization dedicated to protect and promote awareness of all that is significant about New Mexico's unique heritage. For more information about NMHPA or to become a member, contact Stephanie Gainey at (505) 989-7745 or nmhpa@trail.com.

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**Classified Ads**

**For Sale:** Losmandy (Sky Commander) digital setting circle (DSC) computer. It has a 9000+ object database with NGC, IC, and Messier catalogues, planets and up to 59 of your favorites. It has a backlit LCD screen which is heated. Runs off a 12V power supply and is compatible with most encoders systems (as from JMI etc, 4000 to 32000+ resolution). Has RS 232 serial port output. Includes computer, manuals, and cables. Price: $300.00 OBO. Contact Dan Richey at DanR5@AOL.com.

**Glass Wanted:** Having wet my appetite on a 10" Dob, I am now looking for glass to build my next Telescope mirror. So dust of those shelf's and gimme a call. Sammy Lockwood, (505) 275-0258, abqsammy@aol.com.

**For Sale:** C5+, dec motor, carrying case, tripod, and 1.25 inch 45 degree 'correct image' diagonal. Brock Parker. 505-298-2792

**For Sale:** Cronus digital stopwatch. LED display preserves night vision. Powered by three AA batteries. $25. Richard Rast, 505-821-6759, rast@swcp.com.

**For Sale:** Spacewalk stamp, denomination 5¢, 1 sheet of 50 $38.50, 4 sheets of 15 each $11.50 ea; Apollo 8 "In the beginning, God", denomination 6¢, 1 sheet of 50 $15.00; Skylab, denomination 10¢, 1 sheet of 50 $10.00; Earth, sun & Landing craft (double stamp) "A decade of achievement", denomination 8¢, 10 sheets of 50 $19.00 ea. Lynzie Flynn, 867-1100, lflynn@prefer.net.
For Sale: Realistic time and weather dual receiver. Audible time hacks every second or latest weather forecast. Powered by standard 9-volt battery. $25. Richard Rast, 505-821-6759, rast@swcp.com.

Wanted: 1.25 inch eyepieces. I am new to astronomy and just received a used telescope from my brother—less eyepieces. I am looking for used good quality 1.25 inch eyepieces in the 12mm-20mm range. Give me a call if you have extras you would like to sell. Barry King, 505-836-6044, bking@tvi.cc.nm.us.

Non-commercial ads for astronomy related products listed at no charge for members. To place an ad, send a message to the editor at the society PO box or send a message to mycall@rt66.com.