TAAS has the great honor of hosting Apollo astronaut Dr. Harrison Schmitt at our June 6 regular meeting. Dr. Schmitt provided the following abstract of his talk — ed.

In December 1972, the Apollo 17 mission became the most recent field trip to the Moon by human explorers. This 13 day adventure in space took Gene Cernan and Harrison Schmitt to the Valley of Taurus-Littrow in the southeastern rim of the 500 km diameter basin filled by Mare Serenitatis. After 72 hours on the lunar surface, including 22 hours outside the lunar module Challenger, the astronauts returned over 250 pounds of samples to Earth. The story of this mission captures all the adventure, excitement, beauty, and human drama of the exploration of space.

The samples, and the visual observation, photographs, and geophysical data related to them, completed the documentation of the first human exploration of the Moon. Apollo activities on the Moon, and the international scientific studies related to them, have given us a first order understanding of the evolution of the Moon as a small planet. Our understanding of the early history of the Earth has been greatly enhanced as a consequence.

Proximity to the Earth, lack of atmosphere, gravity only one-sixth that of the Earth, planetary position as the smallest of the terrestrial planets, and potential life-sustaining resources almost certainly assure a role for the Moon in future lunar activities in support of human exploration, utilization, and settlement of space. The Moon can be considered as both a stepping stone towards Mars and beyond and the low cost supply depot for exploration and settlement.

Lack of atmosphere and planetary characteristics also justify the continued use of the Moon as a natural laboratory for comparative planetology and for solar and stellar astronomy.

Finally, resources on the Moon, in addition to their potential use in space, could become an essential part of future helium-3 fusion or solar energy alternatives to the use of environmentally unacceptable hydrocarbons as fuels on Earth. The corporate vision of a proposed Interlune-Intermars Initiative encompasses commercial enterprises related to resources from space which support the preservation of the human species and our home planet. A commercially instigated return of human activities to the Moon will be required as an alternative to government sponsored efforts due to the increasing limitations on discretionary spending of tax resources.

Attaining a level of sustaining operations for the core fusion power and lunar resource business of the proposed Interlune-Intermars Initiative requires about 15 years and $10 to 15 billion of private investment capital as well as the successful marketing and profitable sales of a variety of applied fusion technologies. This level of private investment lies within the spectrum of similar private financing of modern projects such as the TransAlaska Pipeline and the Eurotunnel.

The meeting begins at 7pm at Regener Hall (map on back page). This is one you can’t miss! We will have the usual social hour after Dr. Schmitt’s talk so be sure to bring some goodies to share.
PRESIDENT’S UPDATE

Astro-Blast:

The most important thing to discuss this month is Astro-Blast, the big TAAS event for 1998. The June newsletter covered most of the facts relating to time and directions so I will not go over them here. I hope you will be able to support us as well as you did last year with Be-Bop with Hale-Bopp.

We are still not absolutely sure but it looks like John Dobson will attend. I plan to work with him on one of his “telescope in a day” projects. Should be lots of fun. Give me a call if you want to participate.

Brock Parker has worked hard with the city of Rio Rancho and Astronomy magazine to plan the event. At this point he does not have much to do except layout the observing field. You can really help this effort and make things go a lot smoother on the 25th if you give him a call (298-2792) or give the hotline a call (296-0549) and let us know that you plan to attend and what size telescope you will bring.

Astronomy 101:

Robert Williams has gotten quite involved in developing the Astronomy 101 program. He plans to add a new dimension this time by holding the event at Oak Flat. We discussed the idea with the park rangers on May 23 and it looks like it’s a go.

Robert placed a questionnaire on page 15. You can help Robert develop an even better program if you take a few minutes to fill it out and mail it back. This goes for you old-timers also. Even though you are well beyond the topics covered you can help us come up with ideas for our newer and less experienced members.

Core Group:

I am quite pleased that TAAS membership has more than doubled since I became president two and a half years ago. I am quite disappointed that the “Core Group”, the group of the most active members, has not seen similar growth. It is only natural that over the years members of the core group become interested in other things or need to decrease their level of activity for family, business, or health reasons—or simply because of burnout. For TAAS to survive as an organization some way to draw new members into the core group is needed. I would like to work this issue during my last six months as president but I need your help. Of the 200 or so people that have joined in the last two years I know 5% to 10% of you have the interest and time to become more involved. You know who you are so why haven’t you? What can I do to make it more comfortable or more rewarding for you to become more involved in TAAS?

Random Acts of Kindness

Thanks to Robert Williams for helping to feed pizza to the Astronomy 101 planning crew and to William Wood for arranging the appearance of Dr. Schmitt at the June meeting. A big thanks also goes out to Gordon Pegue for donating the glass for the latest TAAS loaner telescope and to Robbin Pimbley for turning it into a working telescope (Robbinian #3).

New Members

On behalf of the Board of Directors and the general membership, I would like to welcome the following new members to TAAS:

Dave and Donna Brown
David Carroll
Danette Clouser
Larry Compton
Nancy Cunningham
George and Estrella Dulleck
Kathleen and Phil Garcia
Rachel Graham
Dale and Jacquelyn Hethering
Carl Hinchey
Suzanne Kinnison
Thomas O’Laughlin
Gladys Lehman
Charles and Mitzi Lewis
Lyne Olson
Jeff Parrott
Eileen Ponic
Seth Richey
Lindsay Scott
David Siegel
Neal and Wanda Soloman
Sengdhuon St. John
Rebecca and Craig Stoneman
Miguel Villanueva
Ernie Villocesca
Monty Woods
Dr. Q

We hope your membership in TAAS is pleasant and rewarding. Please contact any board member if you have any suggestions or if you would like to become more involved in Society activities.

Total membership is now 417, up 10 from last month.
BOARD MEETING
by Kevin McKeown

Technical difficulties prevented us from publishing information about the May 1998 Board of Directors meeting. I reserved this space up to the last minute hoping we could get it in. We will publish notes from the May and June meeting next month. I did have financial information however:

Total funds on deposit: $9,767.29, an increase of $367.87

Education fund: $2661.00 - $20.62
Observatory fund: $5966.81 + $195.00
General fund: $1139.48 + $193.49
## Rio Rancho Public Library Star Party

*by Robert Williams*

On Friday, June 19, 1998 TAAS is providing a star party for Rio Rancho Public Library. They are making this a pre-party for “Astroblast” the following Thursday. They will be working this into their summer reading program and are expecting about 150 people to show up for the event. Rio Rancho Library is advertising this event to run from 7:00pm to 9:30pm. They are very excited about the party and have invited the public to bring sack dinners and enjoy the night sky along with some story telling.

The Rio Rancho Public Library is next to the Post Office on Southern and Pinetree. If you are not busy that night, come out and be a docent. If you have any questions please call me at 323-0172.
## Starfire Optical Range Tour

*by Allan Green*

We’ve made arrangements to visit the Starfire Optical Range at Phillips Lab on the night of June 27th. The large 3.5 meter Telescope has been equipped with adaptive optics and the resolution of the system is just about equal to the Hubble Space Telescope. The smaller 1.5 meter telescope provides a “guide star” for the adaptive optics by projecting a laser beam more than 14 miles into the atmosphere. Dr. Bob Fugate will be our guide through this unique installation, and if you haven’t visited here before, now is your opportunity.

There is only a limited number of spaces available, and it is important that you phone Allan Green at 281-6651 to confirm your space.

Thanks Much!

Allan

### Notes:

- **TAAS** = The Albuquerque Astronomical Society
- **GNTO** = General Nathan Twining Observatory. Call Gordon Pegue @ 299-5944 to confirm.
- **SFCC** = Santa Fe Community College. Call Brock Parker @ 298-2792 to confirm.
- **UNM** = University of New Mexico Observatory. Call David Sukow @872-3272, or the TAAS hotline @296-0549, or the UNM hotline @ 277-1446 to confirm.
- **ATM** = Amateur Telescope Making. Call Michael Pendley for information @ 296-0549.

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<td>• First quarter (12:41 pm)</td>
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<td>• TAAS Picnic @ Oak Flat</td>
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<td>- Moon 5° S of Mars and 4° S of Venus</td>
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<td>- Mercury Stationary</td>
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<td>- Delta Aquarid Meteor Shower</td>
<td>- Delta Aquarid Meteor Shower</td>
<td>- Mercury Stationary</td>
<td>- GNTO Meeting</td>
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Star Myths

by Robert Williams

In learning constellations and stars to do the planetarium shows in the Starlab, I have searched and found many stories about the constellations and stars, some are great and some so-so. I thought that it would be nice to share some of the stories I have found with you.

The following story comes from a book by Jean Guard Monroe and Ray A. Williamson called They Dance in the Sky-Native American Star Myths. I found this book at the Chaco Canyon Gift Shop.

This story comes form the Onondaga, who live in upstate New York and is called Bright Shinning Old Man.

One autumn many years ago, a band of Onondaga Iroquois were walking toward their winter hunting ground near a large lake in southeast Canada. They had to travel slowly, because the land was wild and rough. When they finally arrived at the place they called Beautiful Lake, they were very thankfull, because, as in years before, they found much game and fish there. Clear water flowed from the many springs in this lovely valley nestled among the hills.

Tracks in the water, the chief of the band, thanked the Great Spirit for their save arrival and for the abundance of wildlife. “We will camp here for the winter,” he told his people. “It will be a good winter.” Everyone was happy. They knew they would prosper in this peaceful valley by Beautiful Lake.

Soon autumn ended and the weather turned colder. Eight children from the band tired of helping their mothers and fathers in the daily chores, began to dance by the lake to amuse themselves. They picked a quiet place away from the village. Each day they met and danced for yours at a time. Though they got hungry and lightheaded, they still danced on and on.

For a long time everything went well. Then one day, while the boys and girls were dancing, a glorious old man appeared to them. He shone like silver in the late autumn sunshine and was covered from head to toe with a cloak of brilliant white feathers. His gleaming hair was very long and white. He was kindly, but he warned the children not to keep on dancing of something terrible would happen to them.

The children didn’t want to hear his words; they continued to dance. Each day, Bright Shining Old Man, as they called him, came and warned them, but the children ignored him.

One day the children decided to take food along with them so they could stay out longer the next day. They asked for food, but their parents refused. “You must eat at home as usual. Then you may go play.” But they resolved to dance all day long just the same. After a while, the children became hungry, and their hunger made them lightheaded. Then slowly, little by little, they began to rise in the air. Suddenly one youngster cried, “Don’t look down, something strange is going on. We seem to be dancing on the air!”

“What great fun!” though the children. At first they were excited and pleased, but soon dancing on air fright- ened them. Now they couldn’t stop or they would fall to the earth far below. Bright Shining Old Man looked up, shaking his head. He watched them rise farther and farther up into the Sky Country.

“If only they had listened to me,” Bright Shining Old Man thought sadly.

Soon an old woman in the village noticed that the boys and girls were floating away. She called and called for them to come back, but they did not stop dancing. Then the whole band gathered below and tried to call the children back, but to no avail.

All this time the children kept on dancing faster and faster. The did not look down. One small boy recognized his father’s voice above the others. The chief, Tracks in the Water, called loudly to his son, “Come back, come back!” The boy looked down and saw his father. At once he became a falling star. The other children kept floating up, up, far into the sky. The Onondaga called them Oot-kwa-tah.

Now whenever the Onondaga Iroquois see a falling star, they are reminded of Oot-kwa-tah, the band of headstrong dancing children.

TAAS Telescope Loaner Program

by Dee Friesen and Jason Vargas

The TAAS telescope curators, Jason Vargas and Dee Friesen, are in the process of reorganizing the telescope loaner program. The objective of the new program will be to provide quality telescopes for the use of TAAS members. It is also planned that the telescopes be available for use at TAAS star parties. The plan calls for the telescopes to be divided into three categories, depending the degree of difficulty in using them. Training in the use of each category will be provided to members as a part of the Astronomy 101 class and as members request to borrow telescopes. Details of the program are being worked out at the present time. All TAAS members are encouraged to pass on any suggestions to Jason Vargas (452-9098, vargas@wans.net) or Dee Friesen (856-1593, friesend@aol.com).

We will present our plan to the Board of Directors for approval in July. However, any TAAS members that desires to borrow a telescope now can call Jason or Dee to make arrangements.
Astronomy-101
by Ruth Pendley

Making a crossword puzzle was more difficult than I first imagined. This one, my first, is somewhat simple—hence the title Astronomy-101. I will try to make a more challenging one soon.

Astronomy 101
by Robert Williams

As I mentioned in the June newsletter our next Astronomy 101 night is on Saturday, August 1, 1998. For those of you who are new to TAAS or do not know what we do at Astronomy 101 nights you can call me at 323-0172 and I will do my best to explain. In general, these nights are intended to give a basic overview of the night sky, and some of the wonderful things that can be found in it. We have had some great responses to the last two 101 nights and I am looking forward to this one.

This event will be held at Oak Flat picnic grounds and will begin at 7:00pm. We chose Oak Flat because of the great dark skies and it is close to Albuquerque. I would encourage anyone who is interested in dark skies to come out and enjoy. Carl Frisch will start by giving a demonstration on how to collimate and use a telescope. Once the sun goes down Mike Pendley will do a slide show, after the slide show Kevin McKeown will do a tour of constellation and bright stars out at that time. Kevin will be doing his part of this program under dark skies, so you will see exactly what he is talking about. We should have plenty of people there to help in pointing out some of the things that Kevin talks about. After Kevin does the constellation tour we will have some telescopes set up so we can actually look at what is out there.

This should be one of the most informative 101 nights we have done and hopefully we will have a good turnout for this event. In this newsletter is a form to RSVP for the Astronomy 101 night. I would really appreciate it if you would please take the time to fill it out and return it (or call me and we can do it over the phone). We will use the responses we get to plan other TAAS events. As an incentive, anyone who RSVP and answers the questions on this form will be entered into a drawing for some door-prizes to be given away at the August 1st 101 night.

Again—call me at 323-0172 if you have any questions or want to RSVP.
A Photon’s Miracle

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Dave presented the following piece to the membership at the May 1998 general meeting. His delivery was absolutely wonderful and contributed as much to the moment as the words—which is all we can present here. Those of you that were at the meeting will remember Dave as you read the words. Those of you that missed the meeting can only imagine. — ed.

This spring I observed a supernova, the first I’ve ever seen. In its explosive death act, a massive star poured as much light into the universe as all the other stars in its galaxy combined.

This particular supernova occurred in a backwater galaxy called NGC 3877. Before the shock, I’d never heard of it. I mean, you expect stars to explode in big, swirling galaxies like M-81. But NGC 3877? What is the universe coming to?

In fact, that grand explosion took place eons ago. For tens of millions of years, the light traveled toward Earth. What a miraculous journey that was.

Imagine a photon—a single drop of light—streaking from the cataclysm. Seemingly, it was lost forever. For tens of thousands of years it passed among the worlds of that distant galaxy. Perhaps it streaked quite near some comet or star. Who can say? But it never made contact, for the void of a galaxy is far greater than its substance. Finally our one special photon left behind all the stars of NGC 3877 and entered the isolation of intergalactic space.

And there the journey seemed to lose all purpose. The photon traveled a billion miles every ninety minutes, but in the empty ranges of the universe, a billion miles is nothing and nowhere. Ninety minutes . . . ninety millennia—there seemed little difference. Where was the progress? What was the point?

Tens of millennia, however, finally added up to tens of millions of years. Our photon proved to be lucky. It entered a new galaxy, the Milky Way, and for thousands of years, it passed among the stars of this new island. Its path took it into a spiraling stream of stars. It passed very close to one of them, a star with name. A star with a name! I wonder how rare that is among the septillion lights of the universe? But the encounter with Chi Ursa Majoris was nothing compared to the events just a century later. After traveling eons among galaxies, after traveling for millennia among stars, the photon briefly entered a region of asteroids, comets, moons, and planets. In just a few hours, the local star, Sol, grew into a sun, just to one side of the photon’s path.

Suddenly, chance took an even more spectacular turn. A blue crescent was expanding ahead. A world lay dead ahead! Somewhere in the darkness, the photon would meet the planet’s night side. A journey through the ages was about to end.

And below was not just any planet. Rather, there spun a world of life and love and upturned eyes. In the last instant of its odyssey, the photon streaked through the Earth’s air—and again beat the odds. It managed to pass safely, avoiding absorption by swirling atoms of nitrogen and oxygen.

And then it fell . . . but not upon cornfield or cobblestone, not upon roof or rainforest. Instead, in a cascading miracle, it shot directly down the tube of my telescope. It struck the main mirror and instantly reversed its course. A few nanoseconds later, it bounced again. This time the telescope’s secondary mirror diverted it thought the side of the tube, through the lenses of the eyepiece.

Imagine that phenomenal journey, the godlike marksmanship of that shot across the so much of the universe. Our one special photon was streaking directly toward a living retina.

What a shame I blinked just then.

Early Spring at Carlsbad Caverns and West Texas

by Bruce Levin

Arrangements were made to visit and present astronomy at Carlsbad Caverns the third weekend of April. This third week was also set aside by the National Park Service as National Park Week. Special presentations were given to the public during the day by cave experts and an archeologist familiar with ruins at numerous National Parks including Chaco Canyon, Gran Quivira, and the Gila Cliff Dwellings.

Even though the bats were not out in force this early in Spring, a few visitors would go down to the main cave entrance to see a few bats leave near sunset to forage for insects. Kevin and Kim Jarigese came down with their daughters Dana and Shelly. David and Terry Bierwirth caravanned with the Jarigese family and set up the research hut for our stay. We had a slide show and telescopes set up for the visitors and park service folks on Saturday evening.

Kevin and Family and David and Terry left Sunday to go back to Albuquerque while I stayed at the Caverns until Tuesday to do more observing and astronomy. A fellow astronomy buff and spelunker from Carlsbad—Walt, park ranger Steve Oakes, and I got together early Sunday afternoon to explore the lower cave. This cave is below the main cavern where the general public tours. We were issued hard hats with the attached miner’s light. This expedition called for ducking down and squeezing through tight spots. The entry to the lower cave was by rope where we leaned and climbed down backward to get down to a series of steep ladders. The only light through most of the lower cave was from our “miner’s” helmets. The highlight of this trip was being able to see a fragile crystalline structure which forms and fleetingly remains only dur-
ing brief periods of ideal humidity conditions. We reached one spot in the cave where we turned off our lights to total darkness and silence for a couple of minutes. The only sound that I could hear was the tinny ringing in my ears. It’s amazing how normal background noise and light (even in darkness) in our daily lives prevent us from experiencing this total deprivation.

I left the caverns just after noon time to drive down to west Texas and the Texas Star Party. On the way down, I stopped at Guadalupe National Park to eat a couple of PB&J Sandwiches a banana, and down a glass of milk. There was a modern visitor’s center there with your typical park service gift shop. After a brief stay there I continued on down to the TSP.

The end of April time frame was the best time to hold the TSP. The weather was dry, but not real hot like it gets in middle May. Afternoon showers and evening clouds also have a tendency to form in later Spring and early Summer. The farmers in Mexico also burn foliage from previous crops and weeds in their fields starting around mid May of each year. This puts a definite haze in the skies of west Texas. I was told that I missed a day of incredible winds on the Monday that I was at the Caverns. We also got a good wind storm on Thursday afternoon at the Prude Ranch—I think I brought home half of Texas with me!

The turn out was not as big as in previous years which made it easier to find a decent camp site—especially since I came down a day or two later than normal. The weather was perfect for astronomy. Most of the evenings were perfectly clear with only a couple of nights of partial cloudiness. I pulled an all nighter on Wednesday evening and Thursday morning. Just before the Thursday morning sunrise, the conjunction of Jupiter and Venus could be seen as the pair of planets rose above the eastern hills with the fine crescent moon rising shortly there after. The trio looked awesome in the 8 X 50 finder-scope and undoubtedly great in a pair of binoculars.

It was great to see old friends and meet some new people. I camped next to Roy Frazier with the Roswell Astronomy Club and enjoyed dinner at the Indian Lodge with Roy, friends, and Howard and Trudy Brewington later in the week when they came down from Alamogordo.

I plan on arranging another trip to Carlsbad Caverns later on this Summer or early Fall to share more astronomy. The bat flights will be in full swing near sunset, with spectacular skies in the evening. Please let me know anytime if you are interested. This will allow me to plan far enough in advance to make arrangements with the park service.

Clear Skies!—Bruce L. Levin

Astronomy at Chaco

by Carl Frisch

In January 1997 John Sefick, an amateur astronomer from the Chicago area and TAAS member, came to the Southwest in search of dark skies. Armed with an arsenal of telescopes, and a CCD imaging system, he had the desire to capture images of galaxies and nebulae in deep space. John, and colleagues from TAAS, came to Chaco Canyon to try out the imaging system under the dark New Mexico skies. Park ranger and TAAS member G B Cornucopia shared in our efforts and later was instrumental in building the Chacoan Observatory.

Chaco proved such a powerful tool to their endeavor that John donated to the park, not only his telescopes and imaging system, but also offered to purchase an observatory dome for the park from Technical Innovations, Inc. of Barnsville, Maryland. Within six months of Sefick’s offer, the park not only secured the necessary funds for building the structure, but had the 15 foot motorized dome in place just outside the visitor center. By early April, 1998, Sefick and Carl Frisch, also of TAAS, had installed a 25 inch F/4 Obsession reflector telescope in the dome, complete with an equatorial platform that will allow it to track the night sky, digital setting circles, SBIG CCD camera, and assorted other “whistles and bells”. Now the fun begins.

On May 30, 1998, TAAS held a public star party at Chaco and assisted the Park Service with a dedication ceremony for the new observatory which will promote dark sky preservation and astronomy for the public.

TAAS members interested in using the observatory for their own agenda should contact G B at Chaco. For more information on night sky programs open to the public, or the ongoing research imaging schedule, interested parties can write to:

G B Cornucopia
C/O Chaco Culture NHP
PO Box 220
Nageezi, NM 87037-0220
Or call G B at the park: (505) 786-7145

To get to Chaco Canyon from Albuquerque take I-25 north to the second Bernalillo exit. Go west on NM 44 about 47 miles past Cuba. Turn left at the sign for Chaco and follow the signs for about 21 miles, 16 of which is a dirt road in excellent condition. The drive from Albuquerque takes about three hours (no thanks to the twenty-two mile construction zone from Rio Rancho to San Ysidro; 45 MPH limit!).

Internet Info

by Michael Pendley

WWW.TAAS.ORG has been working quite well this month. It looks like we might have the bugs worked out.

There are two new items on the TAAS home page. First—I created a page with links to all the 1998 Solar and Lunar Almanac information. Second—we now have a link to Nite Lite. A cute site with a “what’s up in the sky” graphic that is updated each day. Check it out.

Finally, Dennis Mitchell sent me the URL antwrp.gsfc.nasa.gov/apod/ap980521.html. Follow it to see a picture of the new SOHO comet.
What Field Of View Do I Get With My Eyepiece?

This is really a two part question. There are really two field of views that are provided by an eyepiece—apparent field and true field.

The eyepiece apparent field is strictly a function of the construction and geometry of the eyepiece lenses. Larger diameter eyepiece lenses provide wider apparent fields of given type eyepieces. J. B. Sidgwick defines apparent angular field as the angular diameter of the field stop in the ocular as seen through the ocular from the observing position, namely, the exit pupil. A person’s exit pupil resides at the point where the eyepiece brings the image of the optical tube assembly objective lens or mirror to the smallest diameter of light from the eye end lens of the eyepiece. This distance is known as the eye-relief distance (or eye-relief) of the eyepiece. Sam Brown shows the angle generated from the point on the exit pupil plane through the eye end lens of the eyepiece tracing the image plane or field stop as the eyepiece apparent field for various type eyepieces. Typical apparent fields range from 40° to 52° for 1-1/4” barrel commercial eyepieces and wider for 2” eyepieces. The fixed eyepieces have a set or fixed apparent field.

True field is the actual angle of the sky or observed field that is viewed in the eyepiece that is used with a telescope or binoculars. True field is an optical system measurement. Like magnification, a given eyepiece will show a different true field when used with telescopes with different focal lengths. If you know the magnification of the telescope (or optical) system using a given eyepiece and you know the apparent field of the eyepiece, then you can determine the true field of view of the system through that eyepiece.

\[
SM = \frac{AFA}{TFA} = \frac{FL_t}{FL_e}
\]

SM = System magnification
AFA = Apparent Field Angle
TFA = True Field Angle
FL_t = Focal length of telescope
FL_e = Focal length of eyepiece

For example, a 32mm eyepiece with a 52° apparent field when used with a 2000mm focal length telescope will have a magnification of 62.5 times and will provide a true field view of 0.832°. One can see that the lower the system power, the greater the true field that is viewed through a given eyepiece.

The true field of an eyepiece can also be determined by measuring how long it takes a star located on the celestial equator to move across the center or full diameter of the eyepiece from one edge of the field to the other in the eyepiece with the telescope stationary (clock drive off). The earth rotates on its axis at a rate slightly more than 360° in 24 hours solar rate or slightly more than 1 arc-degree every four minutes. Sidereally, this rate translates to 1 arc-degree every 3 minutes and 56 seconds. By taking the measured time and dividing it by the 4 minutes/arc-degree (accurate enough for our purposes) the result will be the true field of the eyepiece.

References:


1997 TAAS Volunteers Part 2
by Mike Pendley & Robert Ortega

Last month we tried to list all the individuals that help at various TAAS events in 1997. We said then that it was very likely that we would miss a few names. Our spies tell us we missed the following people:

Jerry Granok - Be-Bop
Henry Baronsky - Be-Bop and site work at GNTO

Thanks guys and sorry we missed you the first time around. Know anyone else we missed? If so, call the hotline or send the editor e-mail.
School Star Party Update  
by Mike Pendley

April 28—Matheson Park: Another school cloud party! The rain prevented any viewing but 150 people attended the party and enjoyed a slide show by Bruce Levin and 6 planetarium shows (110 people) provided by Robert Williams.

May 5—Hubbert Humphry: All day the weather looked liked we were in for a repeat of Matheson Park. The skies cleared in the late afternoon and we had a very successful event. Bruce Levin provided two slide shows (to about 60 people) while Robert Williams gave 5 of his famous planetarium shows to 140 people. In all, close to 300 people attended.

May 12—Mitchell Elementary: What a way to end the school year: a star party attended by 450-500 people. Skies were clear but wind was a bit of a problem. Robert Williams gave 6 planetarium shows to 150 people while Mike Pendley provided two slide shows to approximately 75 people.

Docents this month were Carl Frisch; Brock Parker; Bruce Levin; Robert Ortega; Robert Williams; Mike, Ruth, Jon and Steve Pendley; and Lisa Wood.

May 22—Young Astronaut Sleepover: Brock Parker and Mike Pendley stopped off at the Atomic Museum on the way home from UNM Friday night to provide viewing for 60 or so members of the Young Astronaut Club. As you can imagine, lights around a high security facility can be a bit of a problem but they got about 30 minutes of viewing in from a shadow on the back side.

The school year is over so this column will not run for the next several months. The only schools scheduled from now until the end of the calendar year are Ray Gabaldon on October 20 and Central Elementary on November 17. We will hold off scheduling any more schools until we see what our docent pool looks like in fall.

Kids’ Corner  
by Lindsay Wood

Star Trek The Next Generation

Hi Kids! This is Lisa Wood, Lindsay’s mom, and since Lindsay is busy with end of the year school activities and finals, I’m going to be the guest writer for the column this month. At the risk of having President Mike dock my pay for presenting a fare that’s totally unscientific, we’re going to have a little fun with Star Trek: The Next Generation Trivia! See if you can answer these questions:

Q) What singer from the Mamas and the Papas played Captain Picard’s old flame, Jenice, in “We’ll Always Have Paris”?
A) Michelle Phillips. And by the way, this was the first episode of Star Trek TNG I ever deigned to watch. I refused to watch the entire first season, not wanting to have my fond memories of the “real” Star Trek tainted by this usurping series, but when I saw Michelle was going to be featured, I decided to watch “just one” and from then on became a bit of a fan.

Q) What famous cosmologist and physicist shows up in the episode “Descent” to play a round of poker with Einstein, Newton and Data? He is well known for his theories about black holes.
A) Stephen Hawking

Q) What Star Trek officer does Wesley like to call “Broccoli” behind his back?
A) Reginald Barclay.

Q) In “the Ensigns of Command” the Sheliak claim that humans inhabit a world deeded to them by the Federation. The Sheliak demand the Federation remove the colony before Sheliak settlers arrive in three days. (Here’s where the astronomy part comes in...) in which of the 88 constellations is the star Sheliak found? (Hint: it’s an ancient musical instrument).
A) Lyra

Q) What is Data’s ultimate storage capacity?
A) 800 quadrillion bits

Now kids, if you knew the answers to all these questions, you’re watching way too much TV! Go out and ride a bike! I used The Nitpicker’s Guide for Next Generation Trekkers for these questions. My favorite Saturday Night Live sketch of all times is when William Shatner shows up at a Star Trek convention and has to answer all these sorts of silly questions from people who don’t know when to turn the TV set off. He says, and I’m just quoting now: “It was just a TV show! Get a life!” Lindsay will be back next month.
Oak Flat
May 23, 1998
by Robert Williams and Mike Pendley

The first of several star parties to be held at Oak Flat this year got off to an unusual start—it didn’t rain! In fact, the skies were quite clear, temperatures were moderate, and seeing was good. TAAS had 19 telescopes on the field (202 inches of total aperture) and well over 200 members of the public attended.

Bruce Levin treated early arrivers to views of a nice Sun spot group and food was provided by one of the park rangers (sorry, we did not have the name at press time). Just before dark, Bruce Levin provided a brief talk on telescope etiquette and Mike Pendley / Kevin McKeown provided a 30 minute slide show. Just as twilight was ending, the crowd moved on to the viewing field for the party. Background music was provided by KOOL 102 D.J. (and TAAS member) Dr. Q.

TAAS participants include (in random order) Carl Frisch (event organizer); Ruth, Mike, and Jon Pendley; Robert Ortega (with his new 16 inch); Robert Williams; Kevin McKeown; Barry Gordon; Gordon Pegue; Alejandra Valderrama; Bruce Levin; Pete Eschman; Sandra Lynn; Dave Blair (who showed me my first asteroid - Mike); Van Sutherland; Dave Wilson; Norm and Glenda Orchant; Mitzi and Charlie Lewis (with his new home made 8 inch f8.5, see color photo on the web under ATM, winter-spring 1998 class); David, Jennifer and Joann Haugh; Rick Thiem; George Pellegrino; and Dr. Q.

The following are non TAAS members who read about the star party and brought their telescopes out. Thanks guys!

Mike Kisner; Mike Kisner Jr.; John Laning; Ron Lipinski; Bob McMurtie; and Randy Schmitt.

UNM Campus Observatory
by David Sukow

May 1: We had a clear night with good seeing. TAAS docents were kept very busy showing the sights to over 100 visitors. A well-prepared and well-chaperoned group of 86 fourth graders from Las Lunas attended, providing many ooohs, aaahs, and one very enthusiastic “Man, that moon is BAD!” We continue to look forward to the return of the showpiece planets, since we were once again unable to fulfill the many requests for Saturn.

May 8: Clouded out.

May 15: The skies were clear but the public did not show up! At best, we had 8 visitors. We later learned that we were competing with graduation night. No matter, Kevin Jarigese and a few Rio Rancho High School kids showed up with their recently donated 25 inch monster. They got a chance to practice setting it up and using it.

May 22: A great night with a comfortable crowd of 50 or so visitors.

May 29: Closed (see below)

Docents for UNM Fridays this month, in no particular order, were Carl Frisch, Mike and Jon Pendley, Brock Parker, Dennis Mitchell, Lisa Wood, and Charlie and Mitzi Lewis.

Several of the UNM docents got together this month to discuss the summer UNM schedule. Even though we typically get a good turnout on summer nights, it was the consensus of the group to only open the observatory on the first Friday of the month while school is out. We made this decision because the docent pool has been shrinking and we wanted to give the regulars a little time off. If you plan to come out to the observatory on a Friday, be sure to call the hotline first to see if any additional changes have been made.

TAAS member Charlie Lewis and his new (way-cool) home made 8 inch f/8.5 telescope. This is the first completed telescope from the most recent TAAS telescope making class. Photo by Mike Pendley.
Astronomy Day 1998
by Michael Pendley

Astronomy Day 1998 is behind us and what a success it was. Brock Parker was not able to write a recap for this issue of the Sidereal Times so you will have to wait until next month for a complete recap. We made the following list of TAAS participants at the end of the day but we were all pretty tired so it would not surprise me if we missed one or two people. Let us know if you know someone that helped out and was not acknowledged:


In addition to a successful day at the mall—we had clear weather and the UNM sponsored event at the campus observatory actually went off. TAAS docents at the observatory were:

Dave Sukow, Carl Frisch, Jay Harden, Robert Ortega, Dave Blair, Brad Hamlins, Roger Flegel, Gordon Pegue, Robbin Pimbley, Sam & Coral Norris, and Steve Snider.
Letters to the Editor

I very much enjoyed Bruce Levin’s discussion of the question “Is it possible to balance an egg on the vernal equinox”? Although I have to admit that I came away with the distinct impression that Mr. Levin really believes, or wants to believe that supernatural forces are at work here. Actually, the egg-balancing trick is so complicated, this alone might suggest that supernatural or unusual forces or processes are at work. In short, just because prosaic explanations elude you, this doesn’t mean that unusual processes then have to be at work!

Anyway, I suppose the best way to “eggspose” Bruce’s egg balancing escapades is to comment on those methods that work—methods well known to farmers in the upper midwest with a lot of time on their hands before planting season—and not at harvest time (September 22nd). Bruce mentioned the dented egg technique. Here you place a small dent (usually on the sly) on the end you want to balance. Another method involves breaking the yolk with a sharp shake of the egg. Since the egg yolk is considerably denser than the albumen, the yolk settles to the end you want to balance which alters the center of gravity of the egg, and affords balance. It’s unclear Bruce described this method in his article.

But another explanation Bruce offered really needs some clarity. This is the trick where the roughness of the eggshell (or even the surface: the salt technique) is used to produce a tiny three point support system for the egg. However, this is not a terribly reliable way to balance an egg—especially whenever you want to do so. Bruce spoke of eggs that would balance at one time, and then refuse to be rebalanced. This is understandable, especially when you realize that a yolk can move around inside the egg quite readily, by natural design. Then he observed that eggs couldn’t be balanced at arbitrary times. Does this mean unusual forces or phenomena are at work? Of course not.

Bruce makes the curious statement—“My personal experience suggests that a change or increase in gravitational force at a given instant is enough to cause the center of mass of the yoke (sic) and/or albumen to pull down low enough in the vertically oriented eggshell to cause the egg to balance”. Bruce makes two serious errors here. First, a change or increase in the gravitational force implies that the gravitational constant “G”, has changed! If G could somehow vary greatly over short distances, or change rapidly with time, the consequences on our world would be severe! However, as is presently understood, G doesn’t change, although one hypothesis has utilized a very long-term change in G to account for some observations of the expanding universe. Secondly, Bruce apparently isn’t aware that the center of mass (or gravity) of any object is independent of gravity! Gravity alone can’t alter the center of mass of an object, unless the internal structure of the object is damaged permanently and redesigned—as in the shaken egg trick I described above.

Furthermore, I have no idea what the “awesome” force is that Bruce describes as being able to pull an egg up to the vertical position at the precise instant of the equinox. If this force exists, then is it likewise easier for a drinking driver to stand on one foot during a field sobriety test? Perhaps Bruce should obtain police department records on the number of DUI arrests at the time of the vernal equinox!

Lastly, in response to Bruce’s questions about whether an egg will balance at any time other than the vernal equinox, I suggest that he should formulate models—on paper—that implicate the sun, moon, and tidal forces in vernal equinox “egg balancing”.

—Kevin McKeown

Apache Canyon Ranch Star Gazing

Tour New Mexico, Inc. is sponsoring a Star Gazing event at Apache Canyon Ranch, a bed and breakfast 40 minutes west of Albuquerque. A bus will leave the Hyatt Regency at 7pm on Saturday, June 27 and return at 1am. The hostess, Ava, will serve gourmet coffee and home baked pies. The bus has plenty of room to pack telescopes and equipment. Cost is $33/person. Call Tour New Mexico at 883-9178 for more info.

For Sale:

2-meter Observa-Dome. This dome was the prototype of the whole 2-meter line and is different from the stock domes in that it’s completely welded together—not bolted. The shutter tracks have been replaced and all seams have been caulked. $1500. Call Steve Snider at 867-4199 or by e-mail at slsnider@flash.net.

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—The Official Newsletter of The Albuquerque Astronomical Society—
Astronomy 101
Saturday, August 1, 1998

Please fill out the following form and return it to TAAS at:
TAAS Astronomy 101
P.O. Box 54072
Albuquerque, NM 87153-4072

Name: ____________________________________________
Address: __________________________________________
______________________________________________________
Home Phone:____________ Work Phone:____________

Do you have a telescope or binoculars? If so what type and size?

_______________________________________________________

What would you like to see done at future 101 nights?

_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

Any information you give us will help us in planning future Astronomy 101 nights. Please take the time to fill out the questions and return to TAAS so we can plan future events for TAAS members. If you call to RSVP or return this form and RSVP for the August 101 night your name will be entered into a drawing for some door prizes to be given at the Astronomy 101 night.

Are you planning on attending the Astronomy 101 night on August 1, 1998?

Would you be interested in going to GNTO, TAAS’ observatory, for a 101 night?

How often would you like to see us do a 101 night?
4 times a year: _____
2 times a year: _____
1 time a year: _____
Other: _____

Would you like to help in the planning of Astronomy 101 nights?

_____________________________________________________________________________________
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**MAGAZINES:** Discount magazine subscriptions to *Sky and Telescope* ($27/12 issues) and *Astronomy* ($24/12 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.)

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**TAAS Hotline:** (505) 296-0549

**Map to UNM Campus Observatory**
(not to scale)

**The Albuquerque Astronomical Society**
P. O. Box 54072
Albuquerque, NM 87153-4072

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