Desert Skies

Tucson Amateur Astronomy Association

Volume XLVII, Number 12 December, 2001

HOLIDAY PARTY

December 14

Tucson Racquet and Fitness Club

Calendar of Events

BEGINNERS LECTURE: Dec. 7, 6:30 pm at the LPL Lecture Hall. This month's topic is *Astronomy Related Projects In Woodworking* by Steven Ratts.
GENERAL MEETING: Dec. 7, 7:30 pm at the LPL Lecture Hall. Topic is *Deep Surveys: Exploring the Cosmic Infrared Background* by Herve Dole, PhD.
BOARD OF DIRECTORS MEETING: Tuesday, Dec. 11, 7:00 pm at Steward Observatory Conference room N305.
STAR PARTIES AND EVENTS:

- 06 Dec - Astrophotography SIG Dinner
- 11 Dec - La Cima Middle School
- 13 Dec- Painted Sky Elementary School
- 14 Dec - Annual Holiday Party
- 15 Dec - Christmas Corner Charity Event
- 18 Dec - Menlo Park Elementary School

Newsletter Schedule: Deadline for articles: Mon, Dec. 10 Printing: Mon, Dec. 17. Folding Party: Tues, Dec. 18. Mailing: Wed, Dec. 19. The newsletter is mailed at least one week prior to the following month's General Meeting.

Cover: December 14 is our Annual Holiday Party. Come enjoy the great food, interesting presentations, and camaraderie.

TAAA Web Page: http://www.tucsonastronomy.org **TAAA Phone Number: (520) 882-1950**

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Membership in the TAAA

Annual Dues

Individual membership	$ 23
Family	$ 28
Senior (over 60) membership	$ 21
Senior Family (at least one over 60)	$ 26
Student membership (over 18 years old)	$ 15

Family Membership includes two adults plus minor children. Persons under 18 may join at a special Reduced Family Membership rate ($15/yr) upon parental or guardian acknowledgement of participation in TAAA activities. Call the Treasurer to request the required form.

Options (add to above membership rates)

Tucson society of the Astronomical League (TAL) dues	$ 3.50
Sky & Telescope Magazine	$ 29.95
Astronomy Magazine	$ 29.00
Postage for New Member Pack	$ 3.50

Donations are accepted for any of the TAAA funds: SA-IDA/Light Pollution, TIMPA, Education, 30" Telescope & Land, or General Fund.

Renewal Information

- Membership expires the last day of the month indicated on your mailing label. You will receive a renewal notice when they are due.
- TAAA members may join the Tucson society of the Astronomical League (TAL). TAL expiration will match your TAAA expiration.
- Discounted Sky & Telescope or Astronomy magazine subscriptions are available to members and can be started or renewed at anytime. Only single year subscriptions are accepted. Allow at least 3 months for processing. Subscriptions must be sent through the TAAA. *Do not send money directly to the magazines.* To change an individual subscription to the group rate, send the above subscription amounts and your magazine renewal notice to the TAAA treasurer.
- To ensure proper credit to your account, please include a note explaining what you are paying for. Credit cards are not accepted. Write one check or money order for dues plus any options or donations. Make it payable to TAAA and send to:

Tucson Amateur Astronomy Association
PO BOX 41254 Tucson, AZ 85717

Mailing Address or Email Changes - Send changes to the above address or email the treasurer.

TAAA Mission Statement - We are a resource for anyone interested in astronomy. It is our mission to nurture a person's natural curiosity about the night sky. By giving people a knowledge and understanding of astronomy, we enhance their enjoyment of the sun, moon, and stars. Through our public activities and school evening observing sessions, we bring astronomy to persons of all ages. Our regular meetings and observing sessions offer members a forum to meet others with similar interests and experiences and to learn from one another.

Desert Skies Publishing Guidelines - All articles, announcements, news, etc. must be submitted by the newsletter deadline noted above. Materials received after that date will appear in the next issue. The editor retains all submissions unless prior arrangements are made. Partial page submissions should be submitted in Word compatible files via e-mail or on a floppy disk. Full-page articles, artwork, and photos can be submitted camera ready. We will not publish slanderous or libelous material! Send submissions to:

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President's Message

As I sit here writing I am thinking more of tomorrow's Leonid meteor shower. By the time you read this it will be history and we will know if the predictions for a spectacular show were true, or a dud.

This is one of those times we get put on the spot to predict the future. So many things in astronomy can be predicted to the precise moment, we know a century ahead exactly what will happen. Eclipses, transits, or even cometary collisions are known well ahead of time. Meteors are
something else, we observe past behavior, make guesses about particle size, solar wind pressure, speed of ejection from the comet nucleus, put it all into a mathematical model and make a scientific WAG (ask me later).

Now I must admit that the people making these guesses are getting much better lately, and have had three previous years to work on this pass of the Leonids to refine their technique. But the predictions are still likely to be wrong, wildly either way. They got last year pretty much spot on, but that was an easy one with only one meteor stream involved. This year is much more complex, with multiple streams involved.

So I read all the predictions, check the predictions for last year and how well they came out and try to make a reasonable judgment on the issue. For it is certain that everyone I know asks me about the meteors this November. Co-workers who know I know a little about astronomy, novice club members, at least a hundred e-mails over the last month, and at least two camera crews (National Geographic and an un-named New York documentary crew). I find myself prefacing every answer with "Our best estimate..." or something similar and explain that meteor prediction is not an exact science. But then I go on to explain that the potential is there for a once in a lifetime event and you really should go out to see whatever happens.

Now everyone puts the predictions to the test. For us the risk is minor, we spend a night out in the dark waiting for the show. I would probably be out anyway; it is a good dark-of-the-moon weekend to spend under the stars. For others the risk is a bit higher, we will be joined by a dozen or more fellow amateurs flying in from across the nation to see the show. For the science of astronomy the risk is even higher, it is another chance for the proverbial egg on the face that so often discredits our science in the eyes of the general public. The same public that so readily forgets the successes that just seem commonplace, and remembers failures for decades. Ask any non-astronomer friend about Halley's comet, of the two failed Mars missions two years ago.

Lets hope the wizards of meteor prediction have got it right this time.

Andrew

Meeting Information

NOTICE!!! This month's lecture will be held in the LPL Lecture Hall!

Beginner's Lecture

Title: Astronomy Related Projects In Woodworking
Speaker: Steven Ratts

Steven will be presenting three of his creations: a parallelogram binocular mount, a variable height observing chair and a tripod for a Nexstar 5 or other similar small scope. Plans for each of these will be included, except the first one, which is from a book. Steve will also present references to other resources on the web and in print which may be useful to amateurs who are willing and interested to try their hand at the "home made" side of our hobby.

Regular Lecture

Title: Deep Surveys: Exploring the Cosmic Infrared Background
Speaker: Herve Dole, PhD

How did galaxies form? How have they evolved? Can we observe their formation and evolution? In order to answer these questions, astronomers have performed various deep surveys in an effort to detect the faintest (and youngest) galaxies. Recently it has become possible to carry out observations in the infrared (from space) and in the sub-millimeter part of the spectrum, where most of the galaxies actually emit photons. This lecture explores what we have learned from these surveys and why they complement the ones performed in the visible (e.g. with HST). Slides from this lecture will be available about the week after the lecture at:
http://mips.as.arizona.edu/~hdole/vulgarisation/confs_hd.html

Dr Herve came to Tucson from the University Paris-South in France. Dr Herve's astronomical background is in cosmology. He arrived in Tucson about a year ago to work on the SIRTF/MIPS team at the U of A. He founded an amateur astronomy association in France and was the president for 6 years before he left. In France he enjoyed walking in the gardens at the Versailles Palace. Here in Tucson, he enjoys hiking in the desert and looking for petroglyphs. He states "as an amateur astronomer, I feel in paradise at Empire Ranch, even with my very small 90 cm ETX telescope with a piggy back camera." Dr Herve recently joined the TAAA. We look forward his lecture.

Club News

Important Notice Regarding December Meeting

There will be a Math final underway on in our normal meeting place this month. Unless you are taking the Math final, we suggest you read on...

The December meeting will be held in the lecture hall at the KUIPER SPACE SCIENCES BUILDING, ROOM 308. (This is the same place we met last June.) The Kuiper Space Sciences building (also called the Lunar and Planetary Lab) is located immediately EAST of FLANDRAU Planetarium on the north side of the University Mall. Enter the building through the front doors located at the southwest corner of the building. Take either the stairway or the elevator up one flight to the 3rd floor. Go between the elevator and the stairway (not through the double doors) and into the "Atrium" (a large lobby without plants). The entrance to the lecture hall is off the atrium. Signs will be posted to guide you to the lecture hall. The Kuiper Lecture Hall hasn't suffered the abuse that the Steward hall has; try to preserve its clean appearance by not bringing food and drinks into the lecture hall.

Handicapped access to the building is by way of a sidewalk going north from the Mall to the east end of the building, then across the front (south) side of the building, and to the front doors. Alternatively, handicapped people can be dropped off at the back (northwest) loading dock area where there are two ramps (one along side Flandrau and the other into the loading dock area. There are some handicapped parking spaces on Hawthorne at the North side of the building.

We will return to the Steward Observatory Lecture Hall for the January meeting.

TAAA Holiday Party

By Liz Kalas

Update: David Levy will be one of the speakers at this year's Holiday Party. The December 7th monthly meeting will be your last chance to make reservations for the party.

This year's TAAA Holiday Party will be held in the Rillito Room at the Tucson Racquet and Fitness Club on Friday, December 14th, starting at 6 pm. The club is located at 4001 N. Country Club Rd. and the entrance to the club parking lot is at the end of Country Club Road where it dead ends a few short blocks north of Fort Lowell Rd. There is parking to the left or right as you approach the club grounds. The entrance to the club is to the left and through an archway of tall hedges.

The menu has an Italian flare this year. The meal will start with an antipasto and fruit appetizer from 6 pm to 7 pm., then dinner at 7 pm. For a dinner entree you will have a choice of either Chicken Marsala or Chicken Picotta. The Marsala is wine and mushroom sauce and the Picotta is lemon and caper sauce. Please indicate your choice when signing up for the party. Included with the dinner will be a tossed salad with bread sticks, vegetarian lasagna, Italian vegetable sauté, non-alcoholic beverage, and cookies. A cash bar will be available. The cost is $18.00 per person. Sign up for the party at the December monthly TAAA meetings or call me at 620-6502. Seating is limited to 75 people.

Speakers are needed for this event. If you are interested in giving a 15-minute talk or showing some slides, please contact John Kalas at 620-6502.

Member News

We welcome the most recent members who have joined the TAAA: John and Nancy Howard, Marilyn Schall, Mel Slanina, Ray and Nora Toscano. Glad to have you join! If you haven't already, be sure to pick up a new members pack at a meeting. Hope you'll make it to our star parties or meetings so we can all get to know you.

We say goodbye to one of our top ten longest running members (since 1980!). Robert McDaniel of Green Valley has decided to not renew his membership indicating increasingly deteriorating eyesight as the reason. We wish him the best.

Our thoughts and prayers go out to Dr Ed Vega and his family at the news of his hospitalization. (See Dean's article elsewhere in this newsletter.)

L. Eduardo Vega Undergoes Surgery

By: Dean Ketelsen

Many of you know Ed Vega from his years of hosting the TAAA spring picnics or meteor observing parties, or school groups, or dark sky meetings or other events at his Vega-Bray Observatory in Benson. He has been hospitalized since the 10th and underwent surgery on the 14th. While his condition is serious, doctors and family are hoping to get him home in time for the Leonids on Saturday. I am sure that hearing from his many friends from the TAAA and around the state would help cheer him and his family. His new mailing address is:

Ed Vega
11331 E. Placita Rancho Grande
Tucson, AZ 85730-5808

Calendars for 2002

Our supply of 2002 calendars is getting smaller and smaller. This may be the last month they will be available. Kalmbach Publishing who publishes Astronomy Magazine produces these stunning calendars each year. The cost is $10 each (~$2 off the regular selling price), or $9 each for more than one. They make great gifts. This calendar, which features a full-color astronomical photo, image, or

painting each month, has daily information about astronomical events, both historical and observational...plus space for adding important events you need to remember. This year there are a number of European Southern Observatory images and a super Hubble image of the area near Eta Carina.

Proceeds from the sale of these calendars will be used appropriately as decided by the board. Thank you to all who support the TAAA through the purchase of the yearly calendars.

January 2002 Newsletter

Our deadline for the first newsletter in 2002 has been shifted up a week, due to the Christmas and New Years holidays. This will allow us to mail the newsletter so it arrives to everyone on time, as well as giving everyone a break to celebrate the holidays.

TAAA Email List-Server

In the next couple weeks, TAAA members with email will receive an email inviting them to join the new TAAA Email List-Server. The board strongly encourages those with email to subscribe to this list-server. This will allow better communication between the TAAA and our membership. It is designed for one-way messaging; only board members and a selected few individuals will be allowed to send messages. It is not a chat list and replies will not go to the list. We're expecting 5 or so messages to be sent per month, so it really should be a low volume list.

The TAAA Board of Directors has chosen Yahoo,! Groups to host the list-server. Members wishing to subscribe to the list should follow the directions in the invitation. (If you do not want to join the list-server then do nothing.) Subscribing is as simple as replying to the invitation email message. You will then receive occasional email messages regarding late breaking news (stuff that didn't make the newsletter), last minute information about star parties, and other information that might be of interest to TAAA members. Yahoo,! Groups are free of charge but it is supported by advertising. Each message will include an ad at the bottom. If you decide you don't want to remain a member of the list-server it is easy to unsubscribe. Each message will include directions for unsubscribing.

In addition, TAAA members may want to register with Yahoo,! Groups (www.yahoogroups.com, click on "Register"). You will be asked to supply a login and a password. By registering, you will have access to the Yahoo,! Groups website for TAAA members. At this website, you will find useful information such as the TIMPA rules and procedures, a FAQ page, and a place where TAAA members can upload photos. Registering with Yahoo,! Groups are voluntary. (TAAA members who are already Yahoo,! Groups members need not register again.) Before registering, the TAAA Board encourages members to read the Yahoo,! Groups Privacy Policy. Links to this policy can be found throughout the Yahoo,! Groups website.

If the TAAA has a current email address for you, then you should receive this invitation in the next couple weeks. If you do not receive the invitation by mid-December, email Terri at tklappin@earthlink.net and supply her with your email address. If you have any questions about this list server, please contact Terri at the above email address or by phone at 579-0185.

Leonid Meteor Storm 2001

By: Paul Olson

To say that TAAA had the treat of a lifetime on the night of November 17th is a severe understatement! WOW, Gosh, OH GOD, Incredible, Fantastic, Amazing!....We Simply ran completely out of expletives at the TIMPA site that night as 200 people or so had the opportunity to witness one of the rarest events in nature...A METEOR STORM.

I began my evening at Sewell Elementary School with Club members Andrew Keefer and Ewin Whitaker. The school is heavily involved in Project Astro, for which, TAAA has provided many Amateur and Professional astronomers to serve on a volunteer basis in elementary school classrooms. We meet with the kids sometimes as often as weekly to provide lessons and experiments in basic astronomy.

The School and the Partner Astronomers decided to have a LEONID METEOR SHOWER Sleep Over on the school grounds in eastside Tucson. Approximately 60 children in grades 3 and 4 attended the all night event accompanies by 4 Teachers, 3 Astronomers and about 30 parents as well.

We began by hearing from Mr. Whitaker who lectured for 30 minutes on his experiences with NASA and the planning of Lunar Missions in the 60's and 70's. He showed the children a U.S. Flag that had actually been to the Moon on one mission.

After this everyone went out in the dark to the playground

Club News (cont.)

where 5 Telescopes provided the children and adults alike with stunning views of Saturn, Jupiter, and other wonders of the night sky, which can be seen from within the limits of the light pollution at 5th and Wilmot Roads.

We had a surprise visit from KGUN 9 News who interviewed several children and Paul Olson on the upcoming Meteor shower.

After the early night event, about midnight or so, I high-tailed it out to TIMPA arriving about 1AM. The children remained at the school and were wowed, and awed by the Leonids, which Andrew Keefer unofficially counted at approximately 500 Meteors per hour.

At TIMPA, 1AM - Cloud cover over approximately 75% of the sky lead many to pack it in early.... but those who stayed.... were stunned speechless..... in the hours to come.

By 2:30 and the Meteor count was up in the 500-600 area and the clouds magically cleared over our location.....By 2:50 AM we were counting meteors at the rate of 25+ per minute. There simply wasn't anywhere in the sky where you could look for over 10 seconds and not see a Meteor! Our very unofficial count was in the 2000 - 2500 meteor per hour Range! I found myself asking if anyone had any extra expletives as I had run out!

Seeing a few of the sometimes reserved and serious astronomers going literally horse in voice from wonder at the spectacle was in amazing experience.

Some of the fireballs, especially one in Orion about 3:30 AM, left trails, which glowed and twisted in the upper level winds for as long as 5-10 minutes at a time.... and there were multiple fireballs coming in groups. It was not unusual to see between 3-8 meteors at one time!

By 5:30 AM the count had again dropped to around 500 Meteors per hour. It was truly fascinating to see car lights going on and see people leaving because there were ONLY 8 Meteors per minute happening at that time (Oh well, another Meteor, time to go home to bed I guess!!!)

I left the site at 6:00 AM and returned to Sewell Elementary where the children were just awakening with their parents at 7:15 AM! Each of the adults and children awoke to recall the wonders they had witnessed the night before. It was an Astronomy Dream night for anyone who had the tenacity to stay up for the event.

Those of us who had the opportunity to witness this incredible event will surely never forget the Night of November 17th, 2001.

For me personally, it was probably the most incredible night that I have ever spent under the stars! I can't wait to hear the official counts and to get those PICTURES DEVELOPED!

Use of the TIMPA Site

Just a reminder that anyone wishing to use the TIMPA Site for a time other than the regularly scheduled monthly club star party must notify either Andrew Cooper or John Kalas of their intentions. Please review the TIMPA Site Use Procedure in the ***TIMPA Site News*** section of this newsletter.

Star Parties & Events

La Cima Middle School Party **Northwest**
December 11, (Tuesday) No. of Scopes: 7-8

The school is located at 5600 N. La Canada Drive. Take Oracle Road north to River Road and turn left (west). Proceed to La Canada Drive and turn right (north)and go about ½ mile. The school will be on your right. The set-up area is on the north field by the Multi Purpose Room OR on the track. Set-up will be at 5:00pm with observing from 5:30pm to around 8:30pm. A star party leader is needed for this event. A sign up sheet will be available at the December meeting.

Painted Sky Elem. **Northwest-Rancho Vistoso**
December 13, Thursday No. of Scopes: 7

The school is located at 12620 N. Woodburne Avenue. Take Oracle Rd north to Oro Valley. Turn left on 1st Avenue (the light just before the new Home Depot). Follow 1st Avenue for about 1.5 miles to the second stoplight. Continue north as the road now becomes Rancho Vistoso Blvd. Proceed ¼ mile and look for the first left turn (Woodburne Ave). Turn left and follow this road for approximately 2 miles. The school will be on your right. The set-up area is on a playground north of the school on the northeast corner of the grassy playground. Set-up is at 5:00pm with observing from 5:30 to approximately 9:30 pm. A star party leader is needed for this event. A sign up sheet will be available at the December meeting.

Christmas Corner Charity Event Northwest-Continental Ranch Area
December 15, Saturday No. of Scopes: 2-3

The event is located at 7402 W. Palm Brook Place in Continental Ranch. Take I-10 west to Cortaro Road. At Cortaro Rd, turn left and drive about ½ mile to Silverbell Rd. Turn right and follow Silverbell for two miles to Coachline Rd (there is a stoplight here). Turn right and proceed past the Community Center (on your left). Take

Star Parties & Events (cont.)

the first left after the Community Center onto Palm Brook Dr and then an immediate left onto Palm Brook Place. The address is at the top of the cul-de-sac and parking is in the driveway. The observing area is at the end of an access way between two houses, overlooking a wash. Set-up can begin at 4:30 with observing from 5:30pm to 8:00pm. Robert Wilson will be the star party leader for this event. A sign up sheet will be available at the December meeting.

Menlo Park Elementary School **Central**
December 18, Tuesday No. of Scopes: 7

The school is located at 1100 W. Fresno. Take 6th Street west and go under Interstate 10. The next traffic light is Grande Ave. Go left (south). There will be a small public park on the right (Menlo park). At the south end of the park, take a right onto Fresno. The school is on the right and shares a parking lot with the park. The set-up area is on a soccer field located on school grounds, north of the school buildings. Set-up is at 4:30pm with observing from 5:00pm to 7:00pm. A star party leader is needed for this event. A sign up sheet will be available at the December meeting.

Items of Interest

WEBSITES: TRIPS ON THE INTERNET SUPER-SKYWAY

By Rik Hill

On Dec. 14 at 14:34 Tucson time, with the sun only 26 deg. altitude, 24.3% of the sun's diameter (13.7% of the area) will be obscured by the moon in what for the mid-Pacific Ocean will be an annular solar eclipse. This eclipse will begin at 13:25 and end at 15:37 Sky & Telescope had a nice diagram in a recent issue, but where did they get the information for their magazine? For that matter, where did I get all that Tucson specific information!? One of their sources is Dr. Fred Espinak at the Goddard Spaceflight Center. For years he has produced eclipse ephemerides, reports and other ephemerides well in advance of events. This work is invaluable for those planning trips to see such remarkable events. In recent years he has maintained a website with all the relevant information for given events. All this can be found on his Eclipse Home Page at:

http://sunearth.gsfc.nasa.gov/eclipse/eclipse.html

Browse down the page and see the wealth of eclipse information available on the page. It's truly a one-stop shopping spot for eclipse planning. For the eclipse mentioned above go down the page to 'Solar Eclipses: 2001 - 2005' and click on the one for Dec. 14. Here you will find all the information you will need to plan your observing of this eclipse from home ground in Arizona complete with maps and times for various cities.

Now while this is useful for this particular eclipse, note on the Home Page that there is information for eclipses through 2050! This information has geographic plots, and times so you can plan trips. And if you are really into long range planning he has the Five Millennium Catalog of Solar Eclipses-1999 to +3000 and a similar one for Lunar Eclipses!! There is one longer catalog but that is only for "Very Long Eclipses" to the year 7000.

One of the useful functions for this resource for me has been to pin down eclipses I saw as a teenager and younger. Unfortunately, while I was in the military and my journals were in the care of a sibling, and the first one from 1961-65 was lost. So I only have the memories to go by. Having things like the pages entitled, "Solar Eclipses: 1961 - 1970" and "Lunar Eclipses: 1961 - 1970" is very helpful in pinning down the dates and what I saw. Too often these memories were muddled between a 25% and 45% eclipse but this kind of resource can straighten all that out.

At the bottom of the Home Page Dr. Espinak has a great list of other eclipse sites. You will easily blow a whole evening looking at these and some of the spectacular images by other amateurs. I highly recommend this to you.

So, in short, for the western U.S. go to:
http://sunearth.gsfc.nasa.gov/eclipse/ASE2001/ASE2001city1/ASE2001city1w.html

then to see the circumstances for Tucson see:
http://sunearth.gsfc.nasa.gov/eclipse/ASE2001/ASE2001city1/TucsonAZ.GIF

As always, if you know of a particularly good website you would like mentioned here, drop me a line at rhill@lpl.arizona.edu

Halloween Reports

Nick Applegate provided the following report of his Halloween star party...
We did the usual set up on the sidewalk in the driveway in front of our house. (This is our 4th or 5th year doing this.) We had about the same size crowd as last year - good for one large bag of candy.
There were lots of comments:
"Wow", "Great view", etc.
"You do this every year; we look forward to it."
"We were talking about this in the office today."
"How much does a scope like this cost?"
"Don't worry he's on medication for the pink-eye." (Yes,

this was really said.)
All seemed to consider it one of the highlights of the evening. It also turned out to be a meeting place for neighbors that had not previously met. Several came back for second and third looks. Needless to say, the eyepiece needed and got a good cleaning. Also needless to say, I don't use my best eyepiece for this event.

Fun for all and worth doing again.

And from Terri Lappin...
Trees were a problem for us this year! Mars was blocked by one of our trees and we couldn't see the moon until after 8pm when it rose over the neighbor's trees. Being so late I decided to set up my 3" refractor...takes only a few minutes to do and can be easily moved into position. In general, the turnout for Halloween was down from past years and after 8pm only older kids were left wandering the neighborhood. We had about a dozen teens during the hour that the scope was up, but they all enjoyed the view of the full moon. About 8:45pm a group of 5 young men came by and stated that they were "the only ones left on the street" and would I give them lots of candy. Well, I was certain they were correct and I still had a large bowl of candy left. So, each one left with three big handfuls of candy and a memorable view of the moon!

Steward Observatory Public Evening Lecture

Since 1924 Steward Observatory has been hosting public evening lectures in astronomy. The last lecture of this semester will be held on Monday, Dec 3rd 7:30pm. Dr. Roger Angel will present "In Search of Other Earths: The Next Generation of Ground and Space Telescopes". This will be held in the new Integrated Learning Center, Room ILC 120. Following this talk, the 21-inch telescope will be available for viewing the night sky (weather permitting). The lecture and the use of the telescope are free of charge and open to the general public.

Northern Arizona Star Party
Prescott Astronomy Club
By: John Soule

On the night of Friday, March 14, there was a group of amateur astronomers who met at the Mt. Mingus playground up on Mingus Mountain. This event was the Northern Arizona Star Party, hosted by the Prescott Astronomy Club. The night was clear and cool, so all of the stars shown in their glory and brilliance. Many individuals had their telescopes set up so we could view nebulae and star clusters, Mars, and the Milky Way.

We all camped out here, where we all cooked our food and pitched tents or slept in cars or campers. It was an unusual camping experience for my wife and I since we could not use conventional lights and lanterns, but rather when we got there, all the lights were covered with red tape so as not to disturb those observing nearby. We had to prepare our evening meal in the dark.

On Saturday morning there was a swap meet; we had a limited look at different telescopes because of the weather. Saturday afternoon we had four speakers who presented different subjects dealing with observing and astronomy.

Saturday night was another clear night. I saw Uranus for the first time in my life, plus many other objects. I could see the stars in a true perspective in a dark sky, compared to a night sky near city lights.

A Super Star Chart
By Terri Lappin

The "A" series charts are unique. In addition to guide charts to the other series, the "A" series includes charts showing the distribution of various objects across the sky. For example, one map shows the distribution of planetary nebulae across the sky. As these are within our galaxy, they hug the galactic plane. In another chart, the distribution of galactic clusters can be seen concentrated around the galactic center. In contrast, the distribution of galaxies tends to avoid the plane of the Milky Way (a result of intervening dust in our galaxy) and instead shows clumping (especially in the direction of .the Virgo cluster). This is a super tool, especially at public star parties, when trying to visualize (or explain) the distribution of objects across the sky.

The star chart was published in Australia and is a bit biased towards the southern hemisphere. The Large Magellanic Cloud is heavily represented in the "E" and "F" series charts. The "E" series also contains a detailed area of the Virgo cluster (of use to us!) and the area around Eta Carina. In addition, a subset of the "B" series charts has south at top, most useful to southern observers. In total, about 29 star charts are of little use to northern hemisphere observers, but that leaves over 170 star charts that are of use to us.

As for accuracy of stellar positions, the star charts are a compilation from several sources, including the SAO Catalog and the Guide Star Catalog. These are not the most accurate sources for stellar positions available today but, as a star hopper, I don't need exact positions of stars to use them for star hopping.

The Astroatlas is heavy. It's also spiral bound, so I'm a bit concerned that the pages may pull out with use. I would prefer a laminated star chart, but that would be expensive to do and would surely add to the weight. The star chart also takes a bit out of your wallet. I purchased mine for ~ $85 from Starizona, but I think it was well worth it. And, besides...it's for astronomy so money is no object, right? I'm adding this to my observing stuff so if you'd like to see it at a star party just ask.

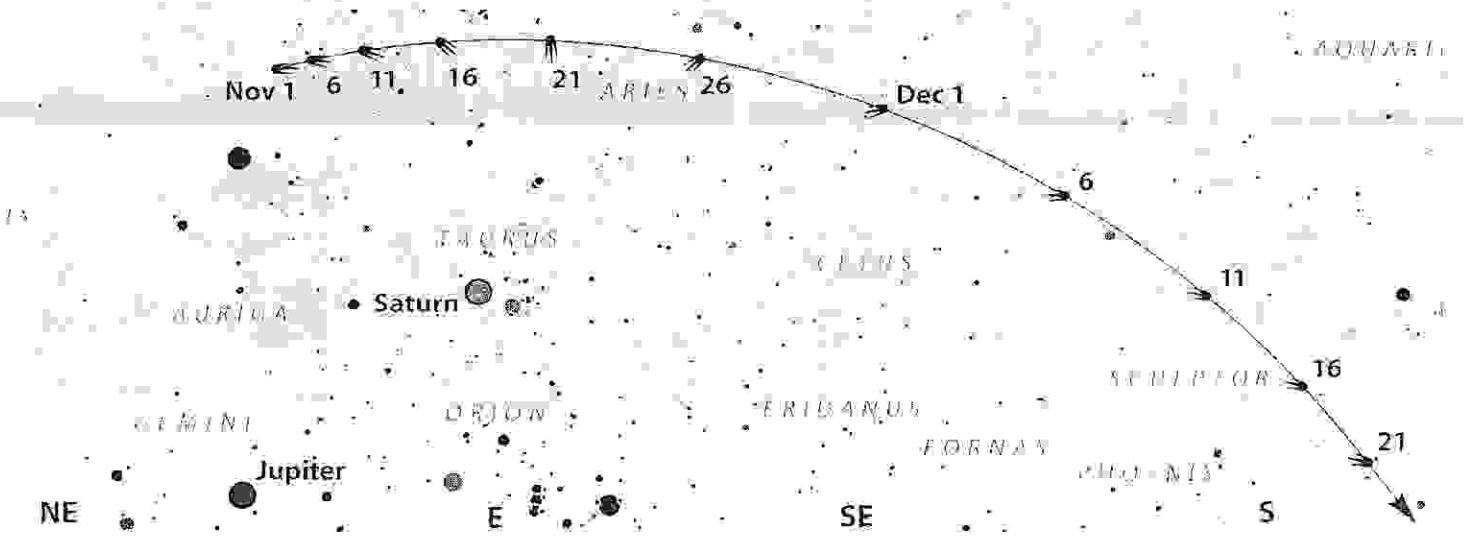
Object of the Month by Alfredo Garcia, Jr.

Wow! Here we are already at the last month of 2001! Where has the year gone? I hope you enjoyed some of the clear skies we had last month and were able to observe the Rosette Nebula and some of the other OTMs of months past. This month, the OTM is a wondrous visitor to our solar system. The ancient Greeks referred to visitors such as this one as a long-haired star.

This long-haired star belongs to the class of objects known as comets. The word comet has its derivation from the ancient Greek word aster kometes, meaning long-haired star. There have been very many fine examples of comets in recent times as well as in the distant past. Who can forget the simply awesome views that Comets Hyakutake and Hale-Bopp offered us in the recent past! Though this month's OTM will not be of that majestic quality, it promises (if current predictions hold up) to be good view in telescopes as well as binoculars and perhaps even to the unaided eye!

Without any further introduction, I present to you the December 2001 OTM, Comet C/2000 WM1 (LINEAR). Comet WM1 is a long period comet that was discovered in mid-November 2000 by a MIT Lincoln Laboratory automated telescope project known as the Lincoln Near Earth Asteroid Research (LINEAR) project. Though it was discovered by the LINEAR telescope and thought to be an asteroid at first, it's verification as a comet was done by an astronomer using one of the telescopes atop the Mt. Hopkins Observatory complex here in Arizona.

Comets are composed mostly of dust and gas which is primarily carbon dioxide, ammonia, and methane. Astronomers often refer to them as dirty snowballs. Predicting how bright these dirty snowballs will get as they approach the inner solar system has proven tricky in the past. But, if predictions hold up for C/2000 WM1, it will get as bright as perhaps magnitude 4 according to the International Astronomical Union Minor Planet Center (IAU MPC). Estimates from NASA place it in the range of magnitude 3 to 7. So let's hope we get in the naked eye limit of magnitude 6 at least and anything above that will be "icing on the cake"!



Like all comets, C/2000 WM1 will loop around the Sun. As it approaches the Sun, gas and dust will burn off of at an increasing rate. Sunlight reflecting from this material will make the comet's head, or coma, grow brighter. The gas and dust will be pushed away by charged particles known as the solar wind, forming two tails. Dust particles form a yellowish tail and ionized gas makes a bluish ion tail. The tails point away from the Sun. For more information on Comet WM1, read the articles presented in the December issues of Sky & Telescope and Astronomy magazines. You can also go to the Comet Observation Homepage at http://encke.jpl.nasa.gov/index.html.

Comet WM1 will be well placed for observation in early December and easy to find, particularly if it reaches naked-eye visibility. Look for the comet in the constellations of Pisces, Cetus, and then Sculptor as the month progresses. The map (Figure I.) shows the comet's path in the sky during the month of December. It is best to observe the comet as soon as it gets dark and when there is no moonlight.

For those with setting circles and automated go to scopes, see Table I. to locate the comet. I picked an arbitrary time of 2000 MST local to compute the comet's RA and DEC coordinates during the period of 3 to 14 Dec. This period presents the comet in moonless skies and at an altitude above the horizon of >20 degrees as seen from the Tucson area. These coordinates may be necessary if the comet does not reach the predicted naked-eye magnitude.

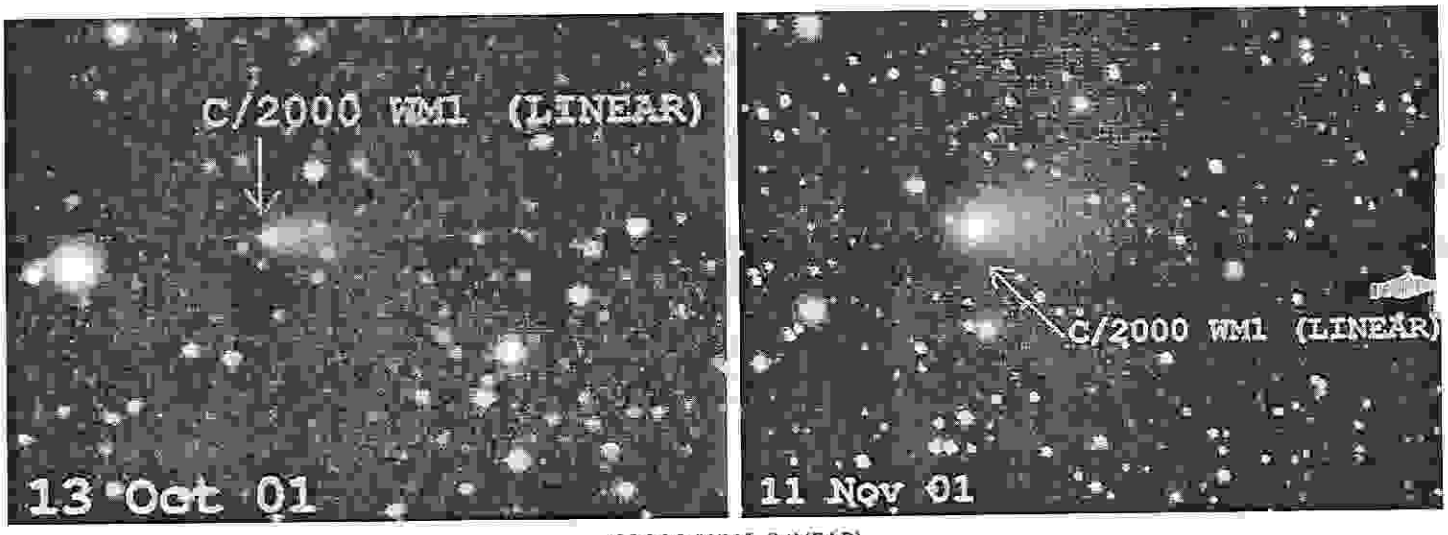
Object of the Month by Alfredo Garcia, Jr. (cont.)

Date (Dec 01)	3	4	5	6	7	8
RA	01 07 49	00 59 40	00 51 35	00 43 46	00 36 07	00 28 32
Dec	- 06 05 12	- 09 31 11	-12 51 39	-16 00 32	-19 06 38	-21 57 58
Alt	51	48	45	42	39	36

Date (Dec 01)	9	10	11	12	13	14
RA	00 21 08	00 13 51	00 06 48	23 59 53	23 53 08	23 46 30
Dec	-24 41 22	-27 07 00	-29 29 27	-31 40 14	-33 40 57	-35 32 09
Alt	33	30	27	24	21	20

C/2000 WM1 (LINEAR) Coordinates
01-14 Dec 01

Though C/2000 WM1 will likely present itself as a great view in a telescopic field of view, it will be an even greater view in a wide field astrophotograph or CCD image. This author took the WM1 images shown almost a month apart, the dates being 13 Oct 01 and 11 Nov 01. In the 13 Oct image, you could already start to see a coma and tail starting to develop. The almost month later image definitely showed a nice coma/tail and brightening of the comet. My magnitude estimates placed the comet at about magnitude 10.5 on 13 Oct and at about magnitude 8.0 on 11 Nov. So you astrophotographers and CCDers, get your cameras ready for what should be a great imaging opportunity if the comet continues to brighten. Good luck on your imaging endeavors!



C2000/WM1 (LINEAR)
10 Minute Exposures Each, 80mm f/5 Refractor w/MX5C Camera

The cold, clear Arizona skies of December promise ample opportunity to view Comet C/2000 WM1 (LINEAR). So let's hope it gets as bright as predicted so we can be privileged to a really amazing sky treat! Who knows what surprises this long-hired star holds in store for us? So get out under the sky and view the comet and imagine what the ancient Greek astronomers thought of the aster kometes!

Clear Skies,
Alfredo

TIMPA Site News

TIMPA Site Use Procedure
June 10, 2001

Purpose: This procedure describes the requirements for astronomical observing use of the TIMPA site for times other than scheduled TAAA club star party activities.

1. TIMPA gate keys will be available from certain persons (Key Keepers). At this time, the Key Keepers are as follows:
   - John Kalas (620-6502)
   - John Polacheck (743-1362)
   - Andrew Cooper (795-3585)

TIMPA Site News

1. Keys may be reserved for access to TIMPA for specific nights; not open-ended periods.
2. A key must be signed out by the borrower. Information about the reservation will be noted on the Key Keeper's Log.
3. It is the responsibility of the Key Keeper to notify the caretakers at TIMPA of the scheduled use of the facility. The caretakers are Gus and Barbara Drews and can be reached at 616-7073.
4. Keys are not transferable to other people and must be returned to the Key Keeper within 2 days of the last day of site use.
5. A late return fee of $5.00 per day, or part thereof, will be imposed on the borrower who does not return the key within two days of the last day of site use.
6. There will be a $3.00 per person per night or $6.00 per carload per night user fee that will be prepaid to the Key Keeper at the time of key pickup.
7. Overnight stays are permitted when acknowledged at the time of reservation.
8. Reservations for groups of ten or more people require special approval from John Polacheck (Home Phone: 743-1362).
9. Persons borrowing a key take full responsibility for the safety and well-being of their party and the appropriate use of the site, i.e. courtesy, security, cleanliness, damage, etc.
10. A $50.00 fine will be imposed if a key is not returned.
11. The club reserves the right to deny future site use privileges to a person who does not return a key or who does not follow the rules of use.
12. An annual pass for site use, starting from the date of donation, may be obtained for a donation of $50.00. Call John Polacheck at 743-1362.

TIMPA Site - Rules of Use

1. Unlock the main gate and close the gate behind you when entering. Drape the locking chain around the closed gate but, for safety reasons, do not lock the gate while you are inside the site. Upon leaving, close the gate and secure it by locking the TAAA padlock to the TIMPA padlock, hasp to hasp.
2. No alcoholic beverages are allowed.
3. Do not litter. Anyone using the site is responsible to clean up after themselves. Use the refuse containers provided.
4. No fires.
5. Use the permanent bathrooms. Make sure that all bathroom and exterior lights are off when you leave.
6. Be aware of hazards, i.e. tripping risks in the dark and the possibility of rattlesnakes. **Do not** kill any snakes. If a rattlesnake continues to be a hazard and will not leave, call 911 from the telephone in the cabinet at the TIMPA ramada. The fire department should be able to remove the snake.
7. Neither the TAAA nor TIMPA is responsible for items lost or stolen at the site.

Until further site improvements are completed, telescopes are to be set up on the parking lot area only. **Do not** set up telescopes in the TIMPA ramada area, north of the chain link fence.

Dark Skies for December 2001

DARK SKIES (no twilight, no moonlight) for Tucson in 24-hour MST: 18=6pm,20=8pm, 22=10pm, 0=12am
RISE, SET, VISIBILITY for sun and bright planets: rise for morning object, s=et for evening object

Fr/Sa	30/ 1	FULL MOON	Mo/Tu	10/11	18:47 - 3:52	Fr/Sa	21/22	23:48 - 5:54
Sa/Su	1/ 2	- - -	Tu/We	11/12	18:47 - 4:57	Sa/Su	22/23	0:42 - 5:54
			We/Th	12/13	18:48 - 5:49			
Su/Mo	2/ 3	18:46 - 19:11	Th/Fr	13/14	18:48 - 5:49	Su/Mo	23/24	1:36 - 5:55
Mo/Tu	3/ 4	18:46 - 20:12	Fr/Sa	14/15	18:48 - 5:50	Mo/Tu	24/25	2:32 - 5:55
Tu/We	4/ 5	18:46 - 21:17	Sa/Su	15/16	18:49 - 5:51	Tu/We	25/26	3:30 - 5:56
We/Th	5/ 6	18:46 - 22:25				We/Th	26/27	4:31 - 5:56
Th/Fr	6/ 7	18:46 - 23:32	Su/Mo	16/17	19:10 - 5:51	Th/Fr	27/28	5:34 - 5:56
Fr/Sa	7/ 8	18:46 - 0:38	Mo/Tu	17/18	20:06 - 5:52	Fr/Sa	28/29	- - -
Sa/Su	8/ 9	18:46 - 1:43	Tu/We	18/19	21:03 - 5:52	Sa/Su	29/30	LUNAR ECLIPSE
			We/Th	19/20	21:59 - 5:53			
Su/Mo	9/10	18:47 - 2:48	Th/Fr	20/21	22:54 - 5:53	Su/Mo	30/31	- - -

Weekend	Sun	Sun	Mercury	Venus	Mars	Jupiter	Saturn	
Sa/Su	Set	Rise	Set Vi	Rise Vi	Set Vi	Rise Vi	Rise Vi	Vi=Visibility
1/ 2	17:17	7:06	17:06 -	6:17 4	22:55 1	19:36 -3	17:23 0	-3 brilliant
8/ 9	17:17	7:12	17:21 -	6:32 5	22:51 1	19:05 -3	Set 0	0 conspicuous
15/16	17:19	7:16	17:38 -	6:46 7	22:48 1	18:34 -3	6:14 0	3 moderate
22/23	17:22	7:20	18:01 9	6:59 9	22:45 1	18:02 -3	5:44 0	6 naked eye limit
29/30	17:26	7:23	18:26 6	7:10 -	22:42 1	17:31 -3	5:14 0	9 binoculars limit

By Erich Karkoschka

TAAA Board of Directors Meeting - November 13, 2001

Location: Steward Observatory Conference Room N305 University of Arizona
Call to Order: 7:10 pm
Board Members Present: Andrew Cooper, Thom Peck, Terri Lappin, Jane Tongate, Steve Peterson, Robert Callanan.
Board Members Absent: Bill Lofquist.
Others Present: Past President John Kalas and Mike Cummins (TIMPA President).

1. Changes to the agenda: Add door prizes, Holiday Party and the December meeting.
2. Events: Andrew Cooper read and reported briefly on the events through December 15. The club appeared light on star parties this month. There may be a paid star party from Omni. Andrew reported that he attended a special event at Empire Ranch. The new official name for Empire is now Las Cienegas.
3. Treasurer's report: Terri Lappin handed out the monthly balance sheet, the expenses exceeded income this month by $164.39. The accountant has completed the club's tax paperwork. The accountant has advised that property donations over $500 be recorded in the books and tracked. Membership is doing well.
4. TIMPA: Mike Cummins, TIMPA President was present to give the Board an update on TIMPA. Neighbor to the west developing a rodeo arena. Night activity would be limited. Mike described the ongoing process of developing TIMPA and dealing with the city and county. John Kalas began a discussion on the future of TIMPA and consulting with the TIMPA group. Andrew recommended proceeding conservatively. TAAA needs to decide what direction to take. Do we continue to invest in this site? Issued tabled as action item for next meeting. John also reminded the Board of procedures for use of TIMPA when regular club activities are not scheduled. A reminder will also be put in the newsletter.
5. Crawford Library Donations: Mrs. Crawford is back in town and has called John Kalas to remove the books so he will coordinate the move for after Thanksgiving.
6. Girl Scout (GS) Counsel SMART Conference: Terri presented this item. This event of open to all GS around town, Terri would like to see continued support from TAAA for this event. The Board agreed.
7. Yahoo Groups: Terri reported her findings regarding the use of Yahoo Groups to serve as a listserve for the club. Members will be invited to join; it is not mandatory to accept.
8. Click Thunderbird Fundraiser: Terri presented this opportunity to the Board. The Board felt this is not something we want to participate in.
9. Leonid Watch: Andrew is organizing this event and presented his ideas for keeping the white light to a minimum. After some discussion a plan was agreed upon and the Board approved a small expense.
10. Door prizes: John Kalas reported that door prizes for the last two monthly meetings had not been picked up from Starizona. There is a concern that Starizona would not be equally represented among the other donors. Andrew will take charge of this to ensure this is done. All prized are greatly appreciated.
11. Holiday Party: Liz and John Kalas working on the speakers. David and Wendy Levy have accepted his invitation. John will also be presenting.
12. December Monthly Meeting: Terri announced that the December meeting will be held at the Lunar & Planetary Lab.

Meeting adjourned at 10:00 pm.

Respectfully submitted,
Jane Tongate, Secretary

Desert Skies Classified

FOR SALE: Orion Premelum Deep Space Explorer Dobsonian. 12.5" F / 4.8, 1524mm FL. Full thickness PYREX mirror with 96% enhanced coatings. 2" with 1 1/4" adapter JMI focuser. Handles on Tube for easy carrying. 9X50 Celestron finder scope. Base, and Dust cover. Price $ 700.00 firm. Colin Butler, 8851 N. Oracle Rd # 255, Tucson AZ, 85737. (520) 877 - 8438 (02/02)

FOR SALE: Celestron Nexstaar 8" SchmidtCassegrain with 40mm Plossel eyepiece. As new, used once. Includes all original packaging and manuals. $1300 OBO. Will consider trades. Jim Berger, 744-3858, <Jberger@theriver.com> (02/02)

FOR SALE Meade LX-200 Superwedge (Asking $250.00). Meade 10" LX-200 Tube Balancing Weights (Asking $60.00) Please contact Chuck Amedia at (520) 574-9287 or Email at chuckamedia@earthlink.net.

FOR SALE Televue Genesis (the original) with Televue everbright diagonal, Telerad and Losmandy plate. The Genesis tube has some scratch from years of use, but no dents. The optics are in good condition. Asking for $1100. Please contact Ted Wu @ 806-3808 or CTGWC@AOL.COM. (12/01)

FOR SALE Like-New Orion Skyquest 8-inch Newtonian telescope on Dobson mount. Eddie Bauer Edition. Includes TelRad base, Finder scope, Lens Holder and 25mm Plossl eyepiece. FOB price at Skyworks is $601. Sacrifice to you for $444. Call Jeanpaul Sosville at 290-6017. (12/01)

FOR SALE: Large shipping case for 10-14" SCTs. Tough rotationally molded ABS plastics with gaskets, in perfect condition. Outside dimensions are 24"L x 26"W x 36"H, subtract two in each dimension for inside dims. The high density foam inside is cut for a Meade 10" OTA. New this would be about $500, asking $200 for it. Contact Andrew Cooper at taaa@seds.org or 795-3585. (12/01)

WANTED: Dome observatory. Minimum size 8' diameter, can be mobile or not. Please call anytime 822-5143 or email: sonskies@azstarnet.com (1/02)

Your ad will run for 4 months unless specified. Month and year of last appearance is last item of ad. For additions or changes to this list, call George Barber at 822-2392or e-mail at barbergj@flash.net.

Constellation Report by Chris Lancaster

Perseus

the hero

The character that we call Perseus interacted with many others in mythology. He was the son of Zeus and the mortal Danae. His most storied accomplishments begin with his intrusion into the cave of the Gorgons--a group of sisters so hideously ugly that any mortal who had the unfortunate chance of setting eyes on one of them would instantly turn into stone. He hunted down Medusa, the only mortal Gorgon, by safely viewing the reflections in his shield. With his sword, Perseus successfully severed Medusa's head to at least end her particular threat to the surrounding population.

In his travels immediately following his encounter with Medusa (who's head he still had with him), he came upon a princess named Andromeda, who was chained to the rocks at the edge of the ocean. The story behind this situation comes from the fact that Andromeda's mother, Cassiopeia, was incredibly boastful, and thus was disfavored by the gods. A sea monster, Cetus, was sent to destroy the coast of the land ruled by Cassiopeia and her husband, Cepheus, as punishment for her egotism, and they sent their daughter as a sacrifice to send away the monster. Now appears Perseus just as the Cetus was about to reach the panicked princess. He holds up the head of Medusa, allowing Cetus to get an eyeful of the terrible face, and the resulting monster-shaped stone slab fell into the sea. An inadvertent outcome of this episode was the creation of the winged horse Pegasus. While Perseus was handling Medusa's head, drops of her blood dripped into the sea foam at the edge of the water and out of this mixture appeared Pegasus.

You should have recognized many familiar names here. All but Medusa are represented in the sky with constellations of their own, and, in addition, are all in the same half of the sky between 20 hours and 3 hours Right Ascension.

Perseus floats at a high declination, closer to the celestial pole than to its equator. This time of year it actually rises near mid-day, crosses the meridian around 10 p.m., and sets close to dawn. It straddles the winter Milky Way, so we can presume that the constellation provides a good collection of objects to observe.

A star of special significance is in the southwest part of the constellation. It's name, Algol, is taken from the Arabic *Al Ra's al Ghul*, or "the demon's head." Many historical cultures have considered this star to be evil, or at least bringing terrible luck. The simple reason for these feelings is the fact that Algol is an eclipsing binary star. Therefore, its light varies--shining most of the time at magnitude 2.1, but then dimming to 3.4 over a period of 2 days, 20 hours, 48 minutes, and 56 seconds. Indeed, observing a naked-eye star behaving this way when all the others shine with steady light might suggest to those in ancient times that something supernatural was involved. However, the explanation is that there are two stars in a close orbit which brings a much dimmer G5 star in front of its brighter B8 companion at regular intervals, thus resulting in a drop in the combined light of the system which lasts about ten hours. It's a simple matter to gauge Algol's brightness by comparing it to Rho (ρ) Persei, which itself is another variable star, but shines with a brightness of magnitude 3.3 most of the time. Rho is a little over 2 degrees away.

The prize for the most photogenic object in Perseus is probably the twin star clusters of NGC869 and NGC884. The common name for the pair is, appropriately, the Double Cluster. Each share the same brightness (magnitude 4.4 for for NGC884, and 4.3 for NGC869) and size (30'). A total of about 150 stars populate 884, and 200 for 869. Most of the stars in each cluster have a white or bluish white tint, but a few stand out with more of an orange hue. You'll easily see the pair forming a fuzzy area to the naked eye in dark skies in the northwest corner of the constellation. Use low power through the telescope to fit both clusters in the same field of view for the best effect.

Not too far away is the planetary nebula M76, or the "Little Dumbbell". It's name comes from the fact that indeed it does resemble M27, the Dumbbell nebula in Vulpecula. This one, however measures only 65" and shines with a dim magnitude 12 glow. Its brightest part forms a rectangular shape in a telescopic view, but there are also looping filaments of gas along its long axis mostly invisible to the eye but apparent in deep CCD or photographic exposures. M76 is off by itself one degree north-northwest of Phi (φ) Persei or, more precisely, RA 1h 42m 18s Dec +51d 35'. It is definitely one of the more challenging Messier objects.

M34 is a collection of about sixty stars covering 35', or about the same size as the full moon. It overall magnitude is 5.2, which makes it easy for binoculars or the finder scope about 5 degrees northwest of Algol.

NGC1023 is our only bright galaxy in Perseus. It's an oval 8.7' x 3.3' in expanse and with a magnitude of 9.5. Its appearance is reminiscent of M31, the famous Andromeda Galaxy, but, of course, many, many times smaller as viewed from Earth. NGC1023 is 3.7 degrees south of M34, or RA 2h 40m 24.1s Dec +39d 03' 46".

If you are up for a real challenge, try NGC1499. This, the California Nebula, requires a large scope, very dark skies, and perhaps even a nebula filter. Its dim light is spread over a truly huge 145' x 40'. Look to Menkib, or Xi (ξ) Persei, which is the star that illuminates NGC1499, and move north about 3/4 of a degree.