Desert Skies

Tucson Amateur Astronomy Association

Volume LVIII, Number 2 February 2012

Astronomical League Observing Club Pins—Did you know there were so many?

General Meeting February 4th

Steward Observatory Lecture Hall, Room N210

Astronomy Fundamentals Lecture—6:30pm

The Astronomical League - presented by Paul Anderson

Invited Lecture—7:30pm

Simple Astrophotography - presented by Steve Coe

Affiliates

TAAA Meeting Friday, February 4

Steward Observatory Lecture Hall, Room N210, U of A campus

6:30pm Astronomy Essentials Lecture
Title: The Astronomical League
Speaker: Paul Anderson

Our Astronomical League Correspondent, Paul Anderson, will update us on AL activities. He'll cover the many observing programs the AL offers. Participating in the observing programs is an excellent way for beginners to learn the sky and become proficient observers. Several TAAA members will tell about their experience with the observing programs.

7:30pm Invited Lecture
Title: Simple Astrophotography
Speaker: Steve Coe

Steve Coe will be visiting us from the Phoenix area to present his talk about easy astrophotography. This is astrophotography without a telescope. He'll discuss how he took the images, including the equipment he uses (a Digital SLR camera) and three easy methods to mount a camera for astrophotography. If you're not interested in how it's done, Steve promises plenty of pretty pictures for your enjoyment.

Steve has been an Arizona astronomer for over 30 years. He's a long time member of the Saguaro Astronomy Club and has been a speaker at many astronomy get-togethers both in Arizona and surrounding states. He's written three books and contributes articles regularly to the Cloudy Nights website.

Steve's latest book, "Touching the Universe", will be available for purchase after the lecture. The price is $25 (cash or check only). The book covers his favorite top 20 nights of observing the sky, everything from a total solar eclipse, to the Australian southern skies and bright comets. The book includes plenty of drawings and photos along with the story of those 20 wonderful nights under the stars.

President's Message

The word "outreach" is used a lot in amateur astronomy. Most of us can't adequately express the sense of wonder that we experience from our hobby, but we have a burning desire to share it with others – so we engage in "show-and -tell" outreach activities. Within an astronomy club, efforts to share our passion are organized into various outreach programs.

TAAA members participate in successful outreach activities throughout the year. Some are small functions, involving only a few people; others have provided exposure to literally thousands of curious folks. Some of the programs, like School Star Parties, operate under a fairly routine system. Our Starry Messenger Special Interest Group, led by Terri Lappin, does some very creative outreach activities. The AFSIG also does various outreach events, and the Family Astronomy Nights at the library have been a success. However, recently we have seen an increase in requests for TAAA to participate in events that include more than just astronomy, or go beyond a traditional night of setting up a few telescopes.

The TAAA Board of Directors gives considerable thought to these large-scale events. While we would like to engage in nearly any outreach opportunity that arises, the reality is that there are limited resources available. Some opportunities carry a financial cost that exceeds our capabilities, and others would require a greater number of volunteers than we can provide.

There are some large outreach events that TAAA has decided to participate in. Last year, we began a partnership with Catalina State Park, which has been highly successful, and has potential to expand. We've recently begun evaluating ways that TAAA can participate in the University of Arizona's "Science Downtown" activities. It's exciting to see some public interest in these types of events.

It's important to remember that outreach programs generally cast a wide net. It would be unrealistic to expect everyone who looks through a telescope, or hears a lecture, to suddenly become an eager amateur astronomer. Outreach activities are like planting seeds; many of them will never sprout, and you may never know which seed you planted is the one that grows strong. When you participate in a TAAA-sponsored astronomy outreach activity, you may very well be the person that plants the seed in someone's mind that will grow into a lifelong appreciation of the cosmos.

The Board has also been discussing other forms of outreach, including how the TAAA website can be more effectively used as an outreach tool. If you have suggestions or ideas about TAAA's outreach activities, please share them with any Board member.

Keith Schlottman

Cover Photo

After completing an Astronomical League Observing Program, the participant is awarded a pin and certificate. Nearly every pin offered by the AL is displayed on our newsletter cover. This month's Astronomy Essentials lecture will be given by Paul Anderson who will talk about some of these Observing Programs.

Desert Skies is published monthly by the Tucson Amateur Astronomy Association, PO Box 41254, Tucson, AZ 85717.

This Month in Brief

Event *Contact Person**	*Date* *Time* *Location*	*See Page*
General Meeting Keith Schlottman	Feb 3 (Fri) 6:30pm Steward Observatory Room N210 933 N Cherry Ave	2
Astro-Imaging SIG Meeting Larry Phillips	Feb 6 (Mon) 6:00pm Coco's Restaurant (for dinner) 6095 E Broadway	4
Board Meeting Keith Schlottman	Feb 8 (Wed) 6:30pm Steward Observatory Room N305 933 N Cherry Ave	9
Astronomy Fundamentals Meeting Ben Bailey	Feb 9 (Thurs) 6:30pm USGS Building - Room 253 520 N Park Avenue	5
School Star Party West Tucson Bill Lofquist	Feb 11 (Sat) 6:00pm Sonoran Science Academy 2325 W Sunset Rd	7
TIMPA/AFSIG Star Party Ben Bailey	Feb 11 (Sat) 5:30pm TIMPA Site 3250 N Reservation Rd	6
School Star Party East Tucson Bill Lofquist	Feb 16 (Thurs) 5:30pm Booth-Fickett School 450 S Montego Dr	7
School Star Party North Tucson Bill Lofquist	Feb 16 (Thurs) 6:00pm Castlehill Country Day School 3225 N Craycroft	7
Chiricahua Astro. Complex Star Party John Kalas	Feb 18 (Sat) Chiricahua Astronomy Complex	6
Friday Nite @ TIMPA Star Party Ben Bailey	Feb 24 (Fri) 5:45pm TIMPA Site 3250 N Reservation Rd	6
Public Star Party Far West Tucson Bill Lofquist	Feb 24 (Fri) 6:00pm Tucson Mountain Park 7300 West Hal Gras Rd	7
Public Star Party Far NW Tucson Bill Lofquist	Feb 25 (Sat) 6:00pm Catalina State Park	7
School Star Party North Tucson Bill Lofquist	Feb 28 (Tues) 6:00pm Tucson Hebrew Academy 3888 E River Rd	7
School Star Party Northwest Tucson Bill Lofquist	Feb 29 (Wed) 6:00pm Twin Peaks Elementary 7995 W Twin Peaks Rd	7

*** Unless otherwise noted, contact information will be found in the section called "How to Contact Us", found on page 15 of this issue of *Desert Skies*.**

Future Dates

Mar 2	TAAA General Meeting
Mar 3, 10, 17	Astronomy Fundamentals Class
Mar 5	Astro-Imaging SIG Mtg
Mar 8	Astronomy Fundamentals SIG Meeting
Mar 14	Board of Directors Meeting
Mar 15	Space Exploration SIG Meeting
Mar 16	Friday Nite @ TIMPA Star Party
Mar 24	Chiricahua Astronomy Complex Star Party
Mar 24	TIMPA Star Party
Mar 31	Starry Messengers Workshop
Mar 31	Sharing the Sky Star Party

Newsletter Deadline

The deadline for the March issue is Wed, February 15. Desert Skies is published at least one week before the General Meeting. See the publishing guidelines for details.

Upcoming Lectures

2 Mar	*Meeting begins at 6:30pm*	Astrophoto Night Astro-Imaging SIG
6 Apr	*Astronomy Essentials*	Mary Turner Seasonal Objects
	Invited	Tom Polakis Astronomy Trip to Chile
May 4	*Meeting begins at 6:30pm*	Members Night
Jun 1	*Astronomy Essentials*	Al Anzaldua Near Earth Asteroids
	Invited	Carl Hergenrother OSIRIS-REx
Jul 6	*Astronomy Essentials*	Mary Turner Seasonal Objects
	Invited	OPEN

Lectures are arranged by Terri Lappin. She's always open to suggestions.

Astro-Imaging Special Interest Group (AISIG)

Meeting: February 6 (Mon) 7pm

Coco's Restaurant (Broadway between Wilmot & Craycroft)
Contact: Larry Phillips

The Astro-Imaging SIG meets at 7pm usually on the first Monday of the month. Come early, anytime after 6 PM and enjoy dinner before the meeting. We will meet in the banquet room which is to the far left after you enter the restaurant proper. Our program consists of members sharing their images, setups, problems, or suggestions. Meetings end no later than 9 PM.

Starry Messengers SIG (SMSIG)

Workshop: March 31 (Sat) Noon

Steward Observatory, Rm N305
Contact: Terri Lappin

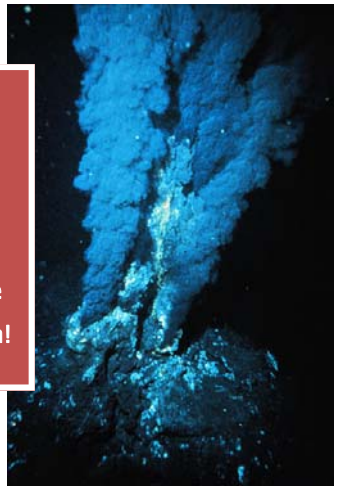
Astrobiology has only recently become a popular area of astronomy. The field considers the origin and evolution of life in the universe, but what can we learn from the only planet known to support life? Using the *Life in the Universe Outreach Toolkit* we'll find that the Earth provides a superb set of varying environments to study. At our March 31st workshop, we'll have an opportunity to experiment with hands-on projects developed by the Astronomical Society of the Pacific designed to open the eyes of young and old to the wonderful world of life here on Earth and the possibilities for life beyond Earth.

There is no charge for the workshop. A sign up sheet will be at the March meeting. We hope you'll be eager to apply what you learn during the Sharing the Sky star party that immediately follows the workshop. However, you're under no obligation to do so.

All participants will receive the CD and DVD that goes with the Life in the Universe Outreach Toolkit. The toolkit, which includes all needed materials, is available for checkout if you want to give a presentation to a group. Toolkits are suitable for about 4th grade and up through adult.

The Starry Messenger SIG provides an environment in which TAAA members can enhance their knowledge and understanding of astronomy and related concepts, all with an emphasis on conveying that information to people of all ages. Any TAAA member involved in astronomy outreach can consider themselves a member of the Starry Messenger

Special Interest Group. If you have never attended a SMSIG workshop or meeting but are participating in TAAA outreach activities, you are supporting the goals of the Starry Messenger SIG. We value your contribution.



Hydrothermal vent on the ocean floor—where you might find the Pompeii Worm!

Credit: NOAA

Solar Observing Group

The Solar Observing group will not be meeting for group solar observing until further notice. Please ignore the February 18th Solar Observing date that appears on the 2012 TAAA wall calendar. Solar observers are encouraged to use the TAAA Forum to post their solar observations.

Space Exploration Special Interest Group (SESIG)

Lecture: March 15 (Thurs) 6:45pm

Woods Memorial Branch Library
Contact: Al Anzaldua

Can we beat light pollution and bad seeing without going into orbit? Software & Micro-ElectroMechanical Systems Engineer Conrad Schneiker, co-founder of Arizona Technology Cluster and board member of Arizona Optics Industries Association (AOIA), will offer a solution to these and other earthly problems in a lecture on March 15 titled, *Stratospheric Platforms for Astronomy, Solar Power, and Space Launch*. Mr. Schneiker's presentation will take place at 6:45 pm at the Woods Memorial Branch Library, 3455 N 1st Ave., just south of Prince Rd. on the west side of the street.

Sign-up sheets for SESIG talks will be provided at the general membership meetings, or RSVP to Al Anzaldua.

Unless otherwise noted, all contact information can be found in the section called "How to Contact Us", found on page 15 of this issue of *Desert Skies*.

Astronomy Fundamentals SIG (AFSIG)

AFSIG Monthly Meeting

February 9 (Thurs) 6:30 pm
U.S.G.S. Building, Room 253 (520 North Park Avenue)
Contact: Ben Bailey

On Thursday, February 9 we will hold our regular monthly meeting. Our own Mike Finerty will present "Topics on Relativity". AFSIG is dedicated to building astronomy knowledge and practical skills among our members. Please come out and help us succeed.

The USGS Building is on the northeast corner of Park and 6th Street. Free parking after 5pm behind the building in a paved lot. Please join us.

AFSIG Observing Clubs

AFSIG Observing Clubs are open to all members of TAAA at no charge. They are guided programs which means that at the scheduled observing sessions, there is someone there to guide you in finding the objects or features needed for successful completion of the program. You can join the programs at any time and can either attend the guided sessions or work on your own. A certificate is awarded at the completion of all the requirements. All observing programs are patterned after those of the Astronomical League, so you can continue on to complete the additional requirements and get your AL certificate.

Solar Observing Club helps those interested in observing solar activity — like sunspots, solar flares and other interesting features — and recording those observations. The beauty of this observing program is that our Sun offers great flexibility in observing and recording the different features – you don't have to be concerned about light pollution, night vision, or traveling great distances to find dark skies. The Solar Observing Club is taking a temporary hiatus from their regular observing schedule. Watch the newsletter for future observing dates. If you are interested in solar observing, please email Ben Bailey to be added to the solar observing email list.

Lunar Observing Club meets sporadically depending on schedule compatibility and the moon cycle. The purpose of this club is to identify and log 30 specified lunar features – some of which are easy while others are more difficult. This is a great club in which to participate as it is ideal for observing from your back yard or patio. Dark skies are not really necessary and some features are even visible through light clouds. If you are interested in participating in the Lunar Observing Club or if you just want to be added to our email list to keep posted about our activities, email Robert Gilroy at bobgilroy [at]tucsonastronomy.org.

Constellation Observing Club meets monthly on our regularly scheduled TIMPA night. The purpose of this club is to identify and log 20 constellations, their brightest stars and deep sky objects. This is a great way to learn your way around the night sky. If you are interested in participating in the Constellation Observing Club or if you just want to be added to our email list to keep posted about our activities, email Paul and Cathy Anderson at paulanderson [at]tucsonastronomy.org.

Solar System Observing Club meets monthly on our regularly scheduled TIMPA night. The purpose of this club is to observe and log the different features and actions of the planets and their moons and other interesting solar system objects. If you are interested in participating in the Solar System Observing Club or if you just want to be added to our email list to keep posted about our activities, email Mike Finerty at mfinerty1[at]msn.com.

Double Star Observing Club meets monthly on our regularly scheduled TIMPA night. The dark night sky is filled with millions and millions of stars. Some are close by (relatively speaking) but most are far away. Some are single stars (like our sun) but others are multiple star systems. Of these multiple star systems, we can detect and split many double stars with our equipment. The purpose of this club is to observe and log the different types and colors of double stars. If you are interested in participating in the Double Star Observing Club or if you just want to be added to our email list to keep posted about our activities, email Tom Watson at watson1987[at]cox.net.

Notice: No Family Astronomy events this month.

Fundamentals of Astronomy Class

March 3, 10, and 17 (all Saturdays)

AFSIG will hold its popular Fundamentals of Astronomy class in March. This three part class is aimed at giving the beginning amateur astronomer a good start in the hobby including the basics of the night sky, equipment, and observing techniques.

Saturday, March 3rd—We will cover basic astronomy, including celestial motion, the celestial coordinate system, and types of celestial objects.

Saturday, March 10th—The subject will be Equipment Basics, including telescopes, mounts, eyepieces, filters, and other observing accessories.

Saturday, March 17th—We will discuss Observing Basics, including locating objects, seeing conditions, and hints and tips on observing various types of objects.

The classes will be held at the regular AFSIG meeting location: Room 253 in the USGS building at 6th and Park on the UA campus. Each day will consist of several presentations, with frequent breaks and a break for lunch. We expect the class to run from 9:00 AM until mid-afternoon on each day. After the March 17th class, a Potluck Supper and Star Party will be held at TIMPA.

The class is free to TAAA members and there is plenty of room on the roster. If you are interested, send an e-mail to fundamentals@tucsonastronomy.org or contact one of the AFSIG Committee members.

Members' Star Parties

TAAA Star Party at TIMPA

Feb 11 (Sat) **Gate opens at 5:30pm**
Feb 24 (Fri) **Gate opens at 5:45pm**
Contact Person: Ben Bailey

In 2012, AFSIG will be hosting two star parties each month at TIMPA, one on a Friday and one on a Saturday. Please come out and join the AFSIG either on Sat, Feb 11 or Fri, Feb 24 for an enjoyable evening of observing. The TIMPA site features a large parking area, and full restroom facilities. The Gila Monster Observatory will be open for your viewing pleasure. Be prepared for cool temperatures after sunset. Guests are welcome, accompanied by a TAAA member. We hope to see you there!

The Gila Monster Observatory houses a Meade 14" telescope donated to the TAAA by David Levy's Sharing the Sky Foundation.

TIMPA Site Notice

A gate card is required for TIMPA access. Please *DO NOT* ask the caretakers for entry to the TIMPA SITE. On scheduled TIMPA star party nights, a designated TAAA representative will provide access to the site. At other times, a gate card is available from the TIMPA Gate Card Controller.

Directions to TIMPA Site

GPS coordinates: 32 deg 15.868' N, 111 deg 16.390' W

The TIMPA site is about 25 minutes from Speedway & I-10, about 7 miles west of the Arizona-Sonora Desert Museum.

From the North:
1. Take Ina Road west about three miles past I-10.
2. Turn south (left) onto Wade Rd. Wade Rd becomes Picture Rocks Rd as the road turns to the west (right).
3. Take Picture Rocks Rd west to Sandario Rd.
4. Turn south (left) onto Sandario Rd. Go to Manville Rd.
5. Turn west (right) onto Manville Rd. Go to Reservation Rd.
6. Turn south (left) onto Reservation Rd (a dirt road) and go about two miles. The TIMPA entrance is on the left.

From the East:
1. Take Speedway Blvd west. It turns into Gates Pass Rd.
2. Go over Gates Pass and continue west to Kinney Rd.
3. Turn north (right) onto Kinney Rd and continue past the Arizona-Sonora Desert Museum.
4. At the entrance to Saguaro National Park West, go towards the left onto Mile Wide Rd. (This is easy to miss so watch for the park entrance sign.)
5. Take Mile Wide Rd west about five miles to Reservation Rd. Mile Wide Rd ends at Reservation Rd and you must turn north (right) onto Reservation Rd.
6. Take Reservation Rd (a dirt road) north about one mile. The entrance to TIMPA will be on the right.

Star Party at Chiricahua Astronomy Complex

Feb 18 (Sat)
Contact Person/RSVP to: John Kalas

The Chiricahua Astronomy Complex (CAC) is the club's dark observing site. Located in Cochise County approximately 100 miles from the center of Tucson, the site includes a full bathroom facility. At an elevation of 4800 feet, be prepared for cooler temperatures. Try to arrive before sunset. Unlike the TIMPA site, members are required to make reservations for both monthly club star parties and private member use. We are restricted to 60 persons and 30 vehicles maximum at any time. If you would like to attend, you must contact CAC Director John Kalas. Reservations will be on a first come – first serve basis. Depending on the number of members interested in attending, guests may not be allowed.

CAC Site Notice

Reservations are required at all times including scheduled star parties. On scheduled CAC star party nights, a TAAA designated representative will unlock the gate. At other times, access can be granted by the CAC Director.

Directions to Chiricahua Astronomy Complex Site

GPS coordinates: 31 deg 52.07' N, 109 deg 30.9' W

The Chiricahua Astronomy Complex is about 90 miles and a 1½ hour drive from the TTT Truck stop at Craycroft Road and Interstate 10.

1. Take I-10 east from Tucson past Benson.
2. Exit I-10 at Dragoon Road (Exit #318) . Turn right onto Dragoon Road at bottom of exit ramp.
3. Travel 13.5 miles southeast to the intersection with Route 191. Turn south (right) onto Route 191.
4. Travel 17.9 miles south (past Sunsites and Margie's Corner Café at High St on the right, and the Border Patrol checkpoint) to the intersection with Route 181 at Sunizona.
5. Turn east (left) onto Route 181 and travel 10.9 miles east to the intersection with South Price Ranch Road. Turn south (right) onto South Price Ranch Rd. This is a dirt road just before you reach mile post 49 (cluster of mailboxes on right side of Route 181).
6. Travel ½ mile south on South Price Ranch Rd to the intersection with East Perseus Way. This is a wide dirt road marked with a street sign on left. Turn east (left) onto East Perseus Way.
7. Travel east on East Perseus Way slightly more than ¼ mile to the entrance of the Chiricahua Astronomy Complex on the right. The address is 9315 E Perseus Way. It is marked with a TAAA sign and twin brown gates flanked by white rail fences set back 50 feet from road.

Community and Educational Events

Members are asked to support our outreach events. TAAA either sponsors or co-sponsors these events. This is a great opportunity for beginners as you can remain on a single object if you like. You can even contribute without a telescope. Sign up sheets will be at the meeting. You can also contact the star party leader or the volunteer coordinator, see the section "*How to Contact Us*" on page 15 of this issue. Maps can be obtained from the TAAA website calendar.

Sonoran Science Academy Star Party
Feb 11 (Sat) **Set-up: 6:00pm**
West Tucson Volunteers Needed: 3
Leader: Bill Lofquist

Sonoran Science Academy is having a star party for their students and families. This is located at 2325 W Sunset Road. Take La Cholla Blvd north, continuing north of River about 1/4 mile to Sunset Road. Turn left (west) onto Sunset Road. The school is on the SW corner of Sunset and San Joaquin Blvd. Enter the student parking lot on the west side of the school. Park in the southeast corner of the parking lot and set up on the Soccer Field. Observing is from 6:30pm to 8:30pm.

Castlehill Country Day School Star Party
Feb 16 (Thurs) **Set-up: 6:00pm**
North Tucson Volunteers Needed: 4
Leader: Bill Lofquist

Castlehill Country Day School is having a star party for 150 students and family members. This is located at 3225 N Craycroft. From Speedway go north on Craycroft past Ft. Lowell. Turn left at the traffic light at St. Gregory Rd. Turn right at the 1st entrance in the chain link fence at the Castlehill sign. Make an immediate left and drive to the back of the school office. Park there. Observing is from 6:00pm to 8:00pm.

Booth-Fickett School Star Party
Feb 16 (Thurs) **Set-up: 5:30pm**
East Tucson Volunteers Needed: 5
Leader: Bill Lofquist

Booth-Fickett School is having a star party for 600 students and family members. This is located at 450 S Montego Drive. Go east on Broadway to Kolb Road. South on Kolb and two blocks east of Kolb on Montego. Observing is from 6:00pm to 8:00pm.

Pima County Natural Resources
Feb 24 (Fri) **Set-up: 6:00pm**
Far West Tucson Volunteers Needed: 3
Leader: Bill Lofquist

Pima County Natural Resources is having a public star party at the Ironwood Picnic Area. This is located at 7300 West Hal Gras Road. On Kinney Road, 1.5 miles south of Gates Pass Road or 3.8 miles north of Ajo Way. We usually set up telescopes on the right side of the road near the bathrooms. Observing is from 6:30pm to 8:30pm. .

Catalina State Park
Feb 25 (Sat) **Set-up: 6:00pm**
Far Northwest Tucson Volunteers Needed: 8
Leader: Bill Lofquist

Catalina State Park is hosting a star party for the public. This is located on North Oracle Rd. Go north on Oracle Road about 6 miles north of Ina Road, past El Conquistador Resort and the shopping areas in Oro Valley. Look for signs for the entrance to Catalina Park. Go all the way to the trailhead parking area at the end of the main road. Observing is from 6:30pm to 9:30pm.

Tucson Hebrew Academy
Feb 28 (Tues) **Set-up: 5:30pm**
North Tucson Volunteers Needed: 3
Leader: Bill Lofquist

Tucson Hebrew Academy is having a star party for 80 students and family members. This is located at 3888 East River Road. Take Alvernon north towards River Road. Where Alvernon becomes River, turn right (east) and continue on River Road. The school will be on the right about 1/2 mile from Alvernon and River. Observing is from 6:00pm to 8:30pm.

Twin Peaks Elementary School
Feb 29 (Wed) **Set-up is at 6:00pm**
Northwest Tucson Volunteers Needed: 4
Leader: Bill Lofquist

Twin Peaks Elementary School is having a star party for 250 students and family members. This is located at 7995 W Twin Peaks Rd. Take I-10 north to the Twin Peaks Exit. Go west (left turn) on Twin Peaks Road, passing Coachline Road. The school will be on the south (left) side of the school before you reach Silverbell. Set up on playground. Observing is from 6:30pn to 8:30pm.

Sharing the Sky Public Star Party March 31st

Save the date! We need you for this public event. We'll be on the UA Mall in front of Flandrau Planetarium beginning at 3pm for Solar observing. Night viewing begins when it's dark enough and ends about 10pm.

Night Sky Network Outreach Toolkits

Like many clubs across the US, the TAAA has an extensive outreach program. We enjoy spreading star light around—sunlight, too! However, there's more to our program than setting up telescopes. We are privileged to have a full set of Night Sky Network Outreach Toolkits to aid us in explaining astronomical concepts to the public.

The Night Sky Network (NSN) began as a coalition of astronomy clubs with active outreach programs; the TAAA is a charter member. Since 2004, the NSN has grown to over 500 clubs and offers clubs much more than just outreach toolkits. For example, we use the NSN online records management system for our membership records.

Since joining the NSN, the TAAA has used the NSN Outreach Toolkits at over 80 events. With continued use of existing toolkits, we qualify for new toolkits as they are developed. We recently received the newest toolkit, Life in the Universe.

Each NSN toolkit has a theme and is related to a NASA space mission. For example, the Space Rocks Toolkit is related to the DAWN mission currently at the asteroid Vesta snapping photos.

A toolkit contains many projects which allows the presenter to pick and choose what they want to present. All are interactive and easy to introduce to the public. Materials are included but you may be required to provide fresh batteries, scissors, or a bag of flour. The TAAA may be able to supply some of these materials. A Resources CD and a Training DVD are also included. Individual training is also available.

A complete list of our Outreach Toolkits is shown below. They can be borrowed for up to a month at a time. You can keep the Resource CD and Training DVD, but all other materials need to be returned. To borrow a toolkit or receive training on their use, contact Terri Lappin.

Outreach Toolkits and Resources Available for Borrowing

Life in the Universe—Are We Alone?: origin of and search for life

Space Rocks – Asteroids, Comets, and Meteorites: meteorite samples, asteroid detection

Exploring the Solar System: scale model of solar system

Our Galaxy, Our Universe: scale model of the Milky Way galaxy and the Universe

Shadows and Silhouettes: lunar phases, eclipses, and transits

Black Hole Survival Kit: gravity concepts

Supernova!: life cycle of massive stars, earth's protective atmosphere

Mirrors and Glass: how telescopes work

Telescopes – Eyes on the Universe: basic principles of optics, the human eye, and observing

PlanetQuest: demonstrate planet detection techniques

Other Outreach Resources

SolarScope: provides a white light image of the sun suitable for small group viewing.

Dark Skies Education Kit: light pollution principles, includes a Sky Quality Meter

Comet Chef: an apron (with a comet on it) and chef's hat to wear when mixing up comets

Moon Globe: 12" diameter with stand

DVDs: *A Private Universe*; *Cosmic Collisions*

Dark Skies for February 2012

Data provided by Erich Karkoschka

No twilight, No moonlight
for Tucson in 24-hour MST
18hrs=6pm, 20hrs=8pm
22hrs=10pm, 0hrs=midnight

Day	Date	Dark Time		
Tu/We	31/1	2:03	-	5:54
We/Th	1/2	2:56	-	5:54
Th/Fr	2/3	3:48	-	5:53
Fr/Sa	3/4	4:38	-	5:53
Sa/Su	4/5	5:24	-	5:52
Su/Mo	5/6	-	-	-
Mo/Tu	6/7	-	-	-
Tu/We	7/8	FULL MOON		
We/Th	8/9	-	-	-
Th/Fr	9/10	19:28	-	20:24
Fr/Sa	10/11	19:28	-	21:30
Sa/Su	11/12	19:29	-	22:36
Su/Mo	12/13	19:30	-	23:43
Mo/Tu	13/14	19:31	-	0:49
Tu/We	14/15	19:32	-	1:54
We/Th	15/16	19:32	-	2:54
Th/Fr	16/17	19:33	-	3:49
Fr/Sa	17/18	19:34	-	4:38
Sa/Su	18/19	19:35	-	5:21
Su/Mo	19/20	19:35	-	5:40
Mo/Tu	20/21	19:36	-	5:39
Tu/We	21/22	19:37	-	5:38
We/Th	22/23	19:38	-	5:37
Th/Fr	23/24	20:14	-	5:36
Fr/Sa	24/25	21:09	-	5:35
Sa/Su	25/26	22:04	-	5:34
Su/Mo	26/27	22:58	-	5:33
Mo/Tu	27/28	23:52	-	5:32
Tu/We	28/29	0:46	-	5:31
We/Th	29/1	1:37	-	5:30

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TAAA Board of Directors Meeting

14 December 2011

Attending: Board members present (5): Bill Lofquist, John Kalas, Keith Schlottman, John Croft, Al Anzaldua.

Members present (4): Ben Bailey, Bob Gilroy, Paul Anderson, Terri Lappin.

Call to Order: The President called the meeting to order at 6:33 pm.

Minutes: Board unanimously approved the minutes from the November 2011 Board meeting.

TAAA Member Feedback: The visitors table is working out well, and board members will be available nearby to answer questions. Also, John Croft will automatically send new members to the visitors table when they receive their new members' packet.

Announcements: Bill Lofquist announced that on Feb 25 and April 14 there will be a TAAA star party with the International Dark Sky Association at Catalina State Park. TAAA members will provide telescopes for the event.

AFSIG Report and Issues
15-16 AFSIG folks enjoyed their recent visit to the 11/26 CAC star party. AFSIG needs a replacement for Bob Gilroy to Update Fundamentals Class Manual.

The Family Observing Program meeting took place at Wilmot Public Library (11/15). The Arizona Daily Star will be there to take photos at the next meeting this Tuesday, 12/20, 6-8 pm, also at the Wilmot Public Library. Future programs will need a new meeting place, as the library restricts its use to three consecutive months.

SESIG Report and Issues
The SESIG coordinator is considering Science Downtown's offer to provide a venue and publicity for SESIG speakers for Sunday's at 2:00 pm.

Starry Messenger
Nothing new to report.

Speaker Report
Connie Walker will be the main speaker in January and Mary Turner will be the Astronomy Essentials speaker. General meeting speakers are lined up until April 2012.

Website Issues
The Board approved a motion to pay Lew Lepley for past work on website plus a three-month retainer.

The Board approved a motion to pay Lew Lepley to work on a new star party request form for the website. Bill Lofquist offered to donate funds to pay for up to three hours of Lou's time to create the website form.

Astronomical League (AL)
Paul Anderson is gathering the names of people who have completed or are still working on AL observing clubs. To help promote the AL during his February 3 Astronomy Essentials presentation, he is soliciting comments from them about their experiences with the clubs.

Treasurer's Report and Discussion of TAAA Budget
There was discussion of line items in the draft operating budget covering the first six months of 2012. Based on the budget review, we are seeing a shortfall in revenues even with cutbacks in some activities.

The Board approved a motion to have members pay for their name tags starting in 2012.

The Board approved a motion to get involved in the annual science fair and allocated $200 for prizes, some of which are customarily matched by merchants and other entities. Terri Lappin offered to coordinate the TAAA's involvement in the science fair.

The Board approved a motion to purchase Directors and Officers insurance for up to $1125 per year. Keith Schlottman will coordinate with John Croft to carry out this purchase.

The Board approved a motion to accept the modified CAC and TAAA Budgets for the first half of 2012.

The Board approved a motion to put the $2000 from the sale of the Michael Smith-donated 14 inch Celestron telescope towards the completion of phase 2B at the CAC Site.

Respectfully submitted,
Al Anzaldua
TAAA Secretary

TAAA Nametags

Orders are being collected for nametags which will be delivery at the March meeting. The cost is $6 for a nametag with a pin back or $9 for the magnetic backs. To place your order, please see Terri Lappin at the Feb 3rd meeting, or mail a check made payable to TAAA (see How to Contact Us, page 15). When mailing your check, please state that you are purchasing a name tag and provide your first and last name exactly as you want it to appear on the nametag. Payment is required before a nametag will be ordered.

Next Board of Director's Meeting

Feb 8 (Wed) **6:30pm**
Steward Observatory Conference, Room N305

Contact the president to have your topic added to the agenda. There may not be time for topics that are not on the agenda. The front doors at Steward Observatory will be locked. Be there by 6:30pm or call the cell phone number of someone you know is attending the meeting and they can let you in.

TAAA Board of Directors Meeting

11 January 2012

Attending: Board members present (7): Bill Lofquist, John Kalas, Keith Schlottman, John Croft, Al Anzaldua, Michael Turner, Vern Dunlap.

Members present (7): Ben Bailey, Bob Gilroy, Paul Anderson, Tim VanDevender, Terri Lappin, Paul Trittenbach, Liz Kalas.

Call to Order: The President called the meeting to order at 6:35 pm.

Minutes: Board unanimously approved the minutes from the December 2011 Board meeting.

Speaker Report
At the February 3rd TAAA meeting, Paul Anderson will discuss the Astronomical League during the Astronomy Essentials Lecture, and Steve Coe will discuss astrophotography during the Invited Lecture. The current lecture schedule is filled for both the Astronomy Essentials and Invited Lectures through the May meeting. Our next openings are June 1st (Astronomy Essentials) and July 6th (Invited, but this date has been offered to a potential speaker). The November meeting will be scheduled with speakers instead of the traditional Members Night.

TAAA Member Feedback: After reviewing TAAA member input, the Board decided to forgo Members Night in November.

Consent Agenda: The Board approved the Consent Agenda for January.

AFSIG Report and Issues
AFSIG members will have a planning meeting on January 12 from 6:00 – 8:00 p.m. at the U.S. Geological Survey building on the UA campus.

Starry Messenger SIG
Starry Messenger SIG will have a planning meeting at 6:30 pm on Jan 23 at Beyond Bread restaurant on 3026 N. Campbell Ave.

Astrophotography SIG
Nothing new to report.

SESIG Report and Issues
SESIG had a turnout of 15 adults and one child at its December 15 workshop on meteorites. SESIG coordinator Al Anzaldua will be meeting with a Science Downtown staff on January 12 to discuss possible collaboration with future TAAA/SESIG lectures and connected publicity.

Star Party Coordinator Report
Bill Lofquist said that all star party slots for January have been filled, and that the response by members to help with star parties this Fall and for January has been excellent.

ALCOR Report
Paul Anderson will discuss how the Astronomical League can enhance member activities during his Astronomy Essentials lecture at the general TAAA meeting next month.

TIMPA Report
Bob Gilroy will attend a bi-monthly TIMPA meeting on Tuesday, January 17. Bob will also draft guidelines for the Board to consider at next month's Board meeting for taking a class of chaperoned 7th graders out to TIMPA, in coordination with their Project Astro teacher. Such guidelines might be then used for other grade levels. Children, parents, and teachers will provide their own transportation, and parents will be expected to sign permission slips and legal waiver forms.

CAC Report
TAAA now has $8516.55 in total donations for completing construction of the Phase 2B RV sites. A telescope has been donated to the club to help with funding for the RV sites. This, plus any additional contributions toward the completion of the RV sites, will help us complete all of Phase 2 facilities.

The CAC strategic planning group will be meeting Jan 25.

Sulfur Springs Valley Electrical Coop (SSVEC) recently sent TAAA a bill of $842.50 over its estimate for electrical work they did on Phase 2 of the CAC construction. John Kalas was able to renegotiate the bill down to ~$95.00.

Member Paul Trittenbach Proposal
Paul Trittenbach proposed that the TAAA explore the idea of producing a series of astronomy videos. The Board asked Paul to produce a short summary of his idea to present to the general membership to ascertain how many members might be interested in working on such a project.

Web Issues
Bill Lofquist presented a list of members who have volunteered to be on the Web Committee. He recommended that Tim Van Devender serve as the coordinator of this group. Tim reviewed his experience working with computers and web development. Since the members of the Web Committee have not yet met, the Board suggested that we have a meeting to review the capability of each member. After that a meeting with Lew Lepley, our consultant, will be planned before moving ahead with more web development. A progress report will be presented at the February Board meeting.

Other Items
The UA College of Science will have a tent at Tucson Festival of Books this year March 10 – 11, 2012. The Board gave Terri Lappin permission to offer TAAA amateur astronomers with solar telescopes should the College of Science desire such help.

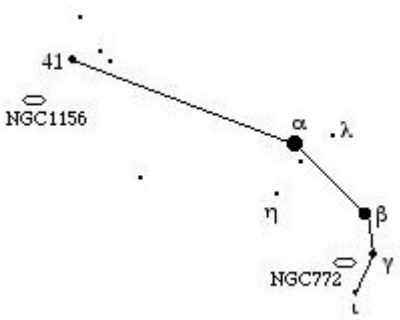
Terri Lappin will coordinate the TAAA's participation in the Science Fair March 12 – 17, 2012. Al Anzaldua volunteered to help Terri with Science Fair activities.

Respectfully submitted,
Al Anzaldua
TAAA Secretary

Chris Lancaster's Constellation of the Month

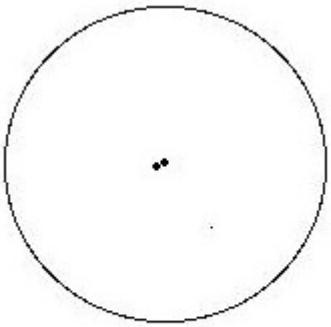
Aries

The Ram



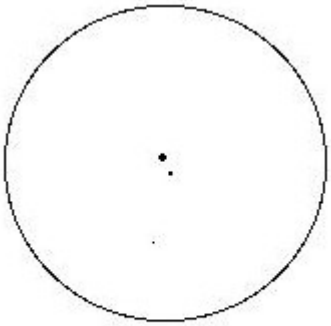
Many ancient civilizations have viewed this inconspicuous group of stars as a ram. Its pattern suggests the curved shape of ram's horns and is a fitting tribute to an animal revered by both nomadic peoples and agricultural settlers alike. Specifically, Egyptians of 16 century BC considered this constellation to be the ram connected with their god Amon Ra. In Greece, it was the golden fleeced ram created by the god Hermes to take the son and daughter of King Athamas of Thessaly away from their abusive stepmother. The ram's final destination was a region near the Black Sea where the animal was sacrificed. Its golden fleece was placed in the branches of a tree and guarded by a dragon, but nevertheless it was later stolen by Jason and his Argonauts.

Looking high in the south, you'll find Aries crossing the meridian near 10pm and tucked between the tall V shape of Pisces and the soft glow of the Pleiades star cluster of Taurus. Its brightest stars range from magnitude 2 to 4.



γ
182X

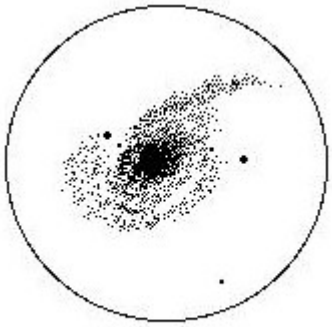
An excellent starting point for your exploration of Aries is the magnificent double star Gamma Arietis. To the naked eye it glows softly at magnitude 3.8. Through the telescope you will see two white points of light oriented due north-south and separated by 8 arc seconds. The two stars are twins in most respects. Each are magnitude 4.8 and of similar spectral types--A0 and B9. In the year 1664, Robert Hooke discovered this double star accidentally while comet hunting. It was one of the first double stars to be discovered, and since then, while hardly any change in PA has been observed, its separation has decreased slightly. This indicates that the orbital plane must be turned flat with respect to the Earth and in a few more centuries the two stars may appear to meet each other with very little or no separation at all.



λ
91X

Another double star which is nearby and one easier to split from its 37" separation, is Lambda Arietis. The primary glows at magnitude 4.9, and the secondary at 7.7, making its overall brightness 4.8.

Since Aries is far from the Milky Way's spiral arms, the deep sky objects here are all in the form of galaxies. But they suffer from remoteness. However, well worth tracking down is NGC772, Aries' brightest galaxy. Comparatively strong at magnitude 11 and measuring 7.3'x 4.3', this galaxy shows a distinct core, and in CCD or photographic images, it reveals an assortment of spiral arms. One arm is elongated dramatically as if being pulled by some unseen attractor. NGC772 is 1.4 degrees east south-east of Gamma Arietis at RA 1h 59.4m Dec +19d 00.4'.



NGC772

NGC1156 is an irregular galaxy measuring a small 3.3'x 2.4' and a little dimmer at magnitude 12. Large telescopes may see a mottled, rectangular object, or otherwise simply an undefined patch of light of roughly oval shape between two dim stars. You'll have to look to the northeast part of the constellation 3 degrees southeast of 41 Arietis, or RA 2h 59.6m Dec +25d 14.3'.

Astronomy Wall Calendars
Available at the Feb Meeting
$10 each cash or check

Member News

We welcome those who recently joined the TAAA: James Berger, Drew Geswein, John Maier, and Ingrid Eck. Glad to have you join! Hope you'll attend star parties and meetings so we can meet you.

Members packs can be picked up at a meeting or mailed for the cost of postage. Updated membership lists are available at our website after logging in.

TAAA Apparel

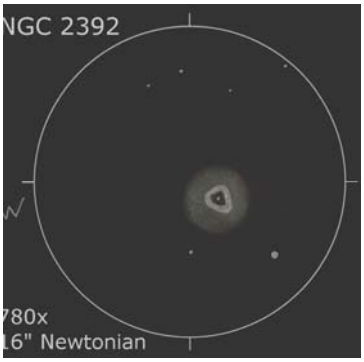
Looking for a special gift or a way to make that fashion statement? Try on something from our fine line of club apparel. We have hats, T-shirts, denim shirts, and patches. We take cash and checks. Available at most monthly meetings. Coordinated by Mae Smith.

Christian Weis' Planetary Nebulae of the Month

NGC 2392 and NGC 2346

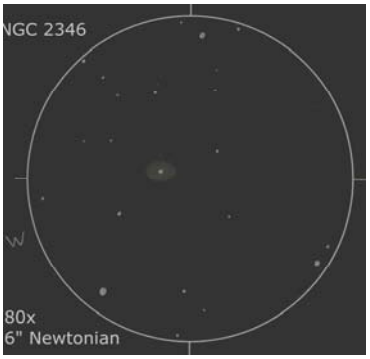
Planetary nebulae (PN) are fascinating objects that come in numerous forms of appearances. Besides the well known grand four Messiers (M27, M57, M76 and M97), there are hundreds more to explore. This article suggests two PNs, a pretty bright and easy-to-observe one and a harder one for the more ambitious observer who is equipped with a bigger scope.

In 1787, William Herschel discovered NGC 2392, the Eskimo nebula, a real showpiece on the winter sky. Unlike many other objects, one can easily understand the naming when observing it. With a magnitude of 8m6 it can be seen in small telescopes or even in binoculars. However, as its angular extension is less than an arcminute, higher magnifications are advisable. When observing that way, one should at least see the central star and a triangularish bright area surrounding the central star, resembling the face of an Eskimo. Of course, bigger apertures reveal more detail. I observed NGC 2392 on Nov 2nd, 2010 at Geology Vista with my 16" Dobsonian having lower-than-average sky conditions. However, I could see some detail. My notes read: Bright central star, bright ring-shaped polygon around central region, circular fainter hull, polygon´s inside is fainter than the hull, but brighter than the background, filters do not help particularly, very nice object; fst 6m2 (Gem), 780x



NGC 2392
RA: 07h 29.2min
Dec: 20° 55´
Constellation: Gemini
Brightness: 8m6
Central star: 10m4
Size: 45 arcsec
Distance: 2900 ly

Three years later than the Eskimo, NGC 2346, the Hourglass nebula, was discovered, again by William Herschel. Even though it is listed in the NGC, it is not a very bright object but has become known after being imaged by the HST. When observing it visually, one will probably first see the central star and then the faint nebula around it. Officially, it is a little bigger than NGC 2392, but the faint outer structures that show the bi-polar nature, are hard to observe. Give it a try - I was not lucky enough at Geology Vista on November 3rd, when sky conditions again were not favourable and wind gusts were affecting observations. My notes read: Pretty faint glow around very bright central star, unmistakably non-stellar at 70x, a little elongated (1:1.3), nice starfield, [OIII]-filter improves contrast, UHC does not; fst 6m2 (Gem), 780x



NGC 2346
RA: 07h 9.4min
Dec: -0° 48´
Constellation: Monoceros
Brightness: 11m9
Central star: 11m1
Size: 55 arcsec
Distance: 3900 ly

Contribute your observations between February 12th and 21st. It's easy!

Navigate to http://www.globeatnight.org/webapp/ with your smartphone. Enter date, time, location. Get yourself dark adapted—the app has a night mode. Match what Orion looks like compared to the star charts on the site. Select the sky conditions. Submit. No smartphone? No problem. Enter your observation on your computer. This is a "citizen science" program to bring attention to light pollution. More information can be found at www.globeatnight.org, including the compilation of data from previous years.

The Visible Planets this Month

Data provided by Erich Karkoschka

Weekend	Sun		Mercury		Venus		Mars		Jupiter		Saturn		Visibility (Vi)	
Sa/Su	Set	Rise	Rise	Vi	Set	Vi	Rise	Vi	Set	Vi	Rise	Vi		Code
4/5	17:58	7:13	7:19	-	21:08	-4	20:41	-1	0:00	-2	23:36	1	-3	brilliant
11/12	18:04	7:07	18:18	-	21:19	-4	20:07	-1	23:37	-2	23:08	1	0	conspicuous
18/19	18:10	7:01	18:52	7	21:30	-4	19:30	-1	23:15	-2	22:40	1	3	moderate
25/26	18:16	6:53	19:25	4	21:41	-4	18:51	-1	22:53	-2	22:12	1	6	naked eye limit
3/4	18:21	6:45	19:46	3	21:51	-4	18:11	-1	22:31	-2	21:43	1	9	binoculars limit

Kid's Area

Hey Kids!

NASA's Space Place—a fun website with games and resources for kids to learn about astronomy and space sciences.

http://spaceplace.nasa.gov

Play the new game on NASA's Space Place!

Go with the Flow

While playing the game, you'll learn about the Earth's oceans

http://spaceplace.nasa.gov/ocean-currents

Space Place Partners' Column *January 2012*

The Nerdiest Video Game Ever

By Dr. Tony Phillips

NASA has a job opening. Wanted: People of all ages to sort, stack, and catalogue terabytes of simulated data from a satellite that launches in 2015. Agile thumbs required.

Sorting terabytes of data? It's more fun than it sounds.

In fact it's a game: Satellite Insight. The Space Place Team at the Jet Propulsion Laboratory created the entertaining app for iPhones to get the word out about GOES-R, an advanced Earth science satellite built by NOAA and NASA.

Described by the Los Angeles Times as possibly "the nerdiest game ever," Satellite Insight may be downloaded for free from Apple's app store. Be careful, though, once you start playing it's hard to stop. Some reviewers have likened it to Tetris, one of the most popular video games of all time.

GOES, short for "Geostationary Operational Environmental Satellite," is the workhorse spacecraft for weather forecasters. NOAA operates two (at a time) in geosynchronous orbit, one above the west coast of N. America and one above the east coast. They monitor clouds, wind, rain, hurricanes, tornadoes and even solar flares. The GOES program has been in action since 1975.

GOES-R is the next-generation satellite with advanced technologies far beyond those of the older GOES satellites. It has sensors for lightning detection, wildfire mapping, storm tracking, search and rescue, solar imaging, and more. Many of the sensors are trailblazers. For example, the Advanced Baseline Imager has 60 times the capability of the current imager—16 channels instead of 5. It has twice the spatial resolution and five times the temporal refresh rate, including the 30-second imaging of weather systems over a region of 1000 km x 1000 km. Also, the Geostationary Lightning Mapper can count and pinpoint lightning bolts over the Americas 24/7. It's the first such detector to fly on a geosynchronous satellite, and it could lead to transformative advances in severe storm warning capability.

New iPhone game is first NOAA app and only the second NASA game app. Just as with the real GOES-R, the challenge with Satellite Insight is to keep up with the massive influx of weather and other environmental data.

All in all, GOES-R represents a "huge technological leap from the current GOES." We know this because Satellite Insight tells us so. The app has an informative "Learn More" feature where players can find out about the satellite and the data they have been sorting.

Which brings us back to sorting data. It's a bit like eating Cheerios; just don't tell the kids it's nutritious, and they love it. Helping GOES-R gather and stash data from all those advanced sensors is just as satisfying, too—a dose of Earth science wrapped in thumb-flying fun.

More information about Satellite Insight may be found on the web at http://itunes.apple.com/us/app/satellite-insight/id463588902?mt=8. The game also available in web form (flying thumbs optional) at spaceplace.nasa.gov/satellite-insight.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

Rik Hill's Website Trips on the Internet Super-Skyway

Clusters of information

The amount of information on astronomical objects grows every year. There is not an astronomical object for which you cannot find all the information you need. I have several times in the past noted some resources for double stars, galaxies, spectroscopy and several other things but I have never concentrated on resources for information on open clusters.

Let's start with an old favorite that starts getting attention at this time of the year, The Beehive Cluster (= Praesepe = M44 = NGC2632). It has been one of the most studied clusters in the sky after the Pleiades and Hyades. I have always enjoyed it because it passes very nearly overhead in Tucson and has been a good source for photometry of cluster member stars to 16th mag. and fainter for decades. A lot of this photometry, as well as spectroscopy, radial velocity, and other measurements of cluster members can be found on WEBDA at:

http://www.univie.ac.at/webda/

This is a website that specializes in all available web data on different types of OPEN clusters. While it contains many historical references, it has provision for new papers to be submitted by authors or institutions. They even support a web newsletter SCYON at:

http://www.univie.ac.at/scyon/

for the die-hard open cluster fanatics with abstracts, announcements of meetings and links to many other astronomical databases.

What originally took me to the site was trying to use M44 to determine what my visual magnitude limits are at my site with the C14. I found that photometry by Harold Johnson in 1952 was the most helpful in this regard. After seeing the tables of his data on WEBDA I went to another service SAO/NASA ADS at:

http://www.adsabs.harvard.edu/

to look up the original paper. This is another website that should be in your bookmarks. These pages were very helpful and soon I had real photometry to rely on rather than the photographic photometry I had used for decades that was done at Paris nearly a century ago.

So what was the upshot to this investigation on the Praesepe? It was not good news. In doing the observations I found that my minimum was just a bit fainter than 15th mag. possibly as faint as 15.4. This is less than a decade or two ago mostly likely due to sky brightness increase in the 18 years I've lived at my current address, and also due to 62 year old eyes!

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

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TAAA Classifieds

For Sale	①Classic C11 OTA. Been in storage for ~10 years but should be fine; tested on the sky and achieved resolution limit for an 11" aperture; minor scuffs and scratches. Asking $850 ($1000 on Cloudy Nights Classifieds) ②C11 fork and base was purchased separately from the OTA and while the drive works it has never carried the OTA. Asking $500. ③Classic Star Liner German Equatorial Mount that carried C11 OTA for many years, homemade tangent arm Dec. drive and tracks very well. This thing is massive. Asking $600. All items are Tucson pick up only at these asking prices. Photos available at: http://www.lpl.arizona.edu/~rhill/instr.html Email Rik Hill at rhill[at]lpl.arizona.edu Expires Feb 2012
For Sale Price Reduced!	Observatory with Home for sale - 3 BR 3 Ba Ranch home on 3.2 acres with horse facilities, huge garage/workshop, in-law or guest room with separate entrance/bath and Home Observatory! Observe steps from your back door, yet easy commute to downtown Tucson. See 5150sBryce.com for details. $200K. Thanks for looking! Claude & Teresa Plymate. 520-444-5979 Expires May 2012
For Sale	Celestron CG-5 Computerized Mount GoTo, with tripod (no telescope), database containing 40,000 objects, polar alignment scope, 2 counterweights. Excellent condition. $400 Contact Gary Rosenbaum, garyr90[at]comcast.net, or Terri Lappin, tk-lappin[at]comcast.net, or call our home phone: 520-579-0185. Expires Mar 2012
For Sale	Celestron Nexstar 6SE Schmidt-Cassegrain with "go to" electronics and rechargeable battery-pack. Call Al at 520-409-5797 if interested. $600 Expires May 2012

Ads 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 or e-mail the newsletter editor.

Membership in the TAAA

Annual Fees

Individual membership $25.00
Family (includes two adults plus minor children)..... $30.00
Youth under 18 years must join as a family upon parental or guardian acknowledgement of participation in TAAA events. Ask the Treasurer for the required form.

Discounts (one qualified discount allowed, subtract from above rates)

Seniors (over 60 years) $2.00
College Students, Teachers (K – 12) $8.00
Youth under 18 yrs. (form required, contact the treasurer) $13.00

Options (add to above membership rates)

Astronomical League (AL) fee..... $7.50
Sky & Telescope Magazine 1 year (12 issues, group rate)..... $32.95
Astronomy Magazine 1 year (12 issues, group rate)..... $34.00
..... 2 years (24 issues, group rate)
..... $60.00
Postage for New Member Pack $4.95

Donations are accepted for the following funds: SA-IDA/Light Pollution, TIMPA, Education, Chiricahua Astronomy Complex, and General/ Undesignated.

Renewal Information

You'll get an email reminder when it's time to renew.
TAAA members may join the Astronomical League (AL) at the time they join or renew.
Discounted Sky & Telescope or Astronomy magazine subscriptions are available to members and can be started or renewed at any time. Allow 3 months for processing. New subscriptions must be sent through the TAAA treasurer. Renewals can be paid online through magazine websites. To change an individual subscription to the group rate, pay the group rate to the TAAA treasurer. Include your magazine renewal notice.
Include a note about what you're 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

Mail changes to address above, email them to the treasurer, or make them yourself online through Night Sky Network login account at http://nightsky.jpl.nasa.gov/login.cfm.

TAAA Mission Statement

The mission of the Tucson Amateur Astronomy Association is to provide opportunities for members and the public to share the joy and excitement of astronomy through observing, education and fun.

Desert Skies Publishing Guidelines

Send submissions to taaa-newsletter[at]tucsonastronomy.org by the newsletter deadline. Materials received after that date will appear in the next issue. The editor retains all submissions unless prior arrangements are made. Submissions should be Word compatible files sent by e-mail or on recordable media. All copyrights retained by Tucson Amateur Astronomy Association or specific author. No reproduction without permission, all rights reserved. We will not publish slanderous or libelous material!

How to Contact Us

TAAA Web Page: www.tucsonastronomy.org Mailing Address: PO Box 41254 Tucson 85717 TAAA Phone Number: 520-792-6414

Office/Position	*Name*	*Phone*	*E-mail Address*
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Vice President(elected board member)	Bill Lofquist	520-297-6653	vice-president[at]tucsonastronomy.org
Secretary (elected board member)	Al Anzaldua	520-409-5797	secretary[at]tucsonastronomy.org
Treasurer (elected board member)	John Croft	520-260-4687	treasurer[at]tucsonastronomy.org
Member-at-Large (elected board member)	Vern Dunlap	520-326-1964	mal1[at]tucsonastronomy.org
Member-at-Large (elected board member)	John Kalas	520-620-6502	mal2[at]tucsonastronomy.org
Member-at-Large (elected board member)	Michael Turner	520-743-3437	mal3[at]tucsonastronomy.org
Chief Observer	Dr. Mary Turner	520-743-3437	chief-observer[at]tucsonastronomy.org
AL Correspondent (ALCOR)	Paul Anderson	520-625-5035	alcor[at]tucsonastronomy.org
Community Event Scheduler	Bill Lofquist	520-297-6653	school-star-party[at]tucsonastronomy.org
Volunteer Coordinator	Bill Lofquist	520-297-6653	school-sp-volunteers[at]tucsonastronomy.org
TIMPA Gate Card Controller	John Kalas	520-620-6502	timpa[at]tucsonastronomy.org
Chiricahua Astronomy Complex Director	John Kalas	520-620-6502	cac-director[at]tucsonastronomy.org
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Book Review—THE KAGUYA LUNAR ATLAS: The Moon in High Resolution

Written by Motomaro Shirao and Charles A. Wood

Reviewed by TAAA Member Thomas Watson

In 2007 the Japanese space program (JAXA) placed a robotic spacecraft into lunar orbit. The Kaguya/Selene orbiter was a complex bundle of scientific instruments that carried out a number of projects for studying the Moon, and included in the instrument package a high definition television camera system for the production of high resolution images of the lunar surface. The Kaguya Lunar Atlas presents a selection of these amazing images. This is a photographic atlas, not a book of maps, and presents 100 high definition images from the mission. These images are bound in a long, slim volume (11x9 inches) along with background and technical information on the mission that produced the pictures. The opening pages of the book outline the mission design, its goals, and how the HD television technology was included. This background material makes for an interesting read and is nicely illustrated into the bargain.

The point of the book is, however, the image collection. The pictures, a mix of familiar landscapes and images from the far side of the Moon, are simply spectacular. The Kaguya images differ from those of past missions, such as the venerable Orbiter missions, by being taken at the low altitude, oblique angles an astronaut might experience. As a result the features viewed have more depth and detail than you generally see in images taken from straight over head.

Eye candy is a fine thing, and for some of us is reason enough to add a volume to our over-burdened bookshelves. But the involvement of Charles Wood in this project adds an important element that significantly increases the value of this slim book. Each image includes a lengthy caption – presumably written by Prof. Wood – on the geology and lunar history illustrated by the selected images. The amount of information packed into each caption is very impressive. For people interested in learning to understand what they see on the Moon, this book will prove a useful reference. The captions combined with the images lift this book above the eye candy category and make it a reference well worth owning.

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