From the Ivory Basement

16. How Do I Get Started in Astronomy?
Part III - Finally, Taking a Look

Barry Spletzer

This is my third and final installment on the subject of getting started in astronomy. The last two episodes in dealt with getting together the hardware and knowing what the stuff up there is going to look like. This final offering discusses how to find those faint fuzzies. I find that even with the right equipment and reasonable expectations, this can be the most frustrating part of getting started. Standing out in the dark, peering through the eyepiece at endless fields of nondescript stars is not much fun. Fortunately, even a beginner can have considerable luck in finding their first celestial jewels quickly. I have found a few simple rules to make your first sessions rewarding.

First, don’t begin your deep sky astronomy in your backyard, unless it’s a really dark backyard. Keep in mind that galaxies and clusters are extended objects that are relatively dim. The combination means that the surface brightness is very low. If you look for these low surface brightness objects in a light polluted location where the sky is not very dark, it will be nearly impossible to see them. In short, find a dark location at least 25 miles from the city. One excellent place is the GNTO, the TAAS private observatory. A good rule of thumb is to see if you can spot the Milky Way with the naked eye. If so, the location is dark enough. Keep in mind that even natural light pollution (the Moon) is a problem. If the Moon is in the sky, it is not a good time to go out.

Second, stick to the brighter objects until you get the hang of it. Many folks start with the Messier list which contains most of the brightest deep sky objects. Be warned that the list does contain some rather small and dim objects as well. A reasonable guideline might be to stick to the brighter half of the list (those magnitudes less than 8.5 or so). One big advantage of the Messier list is that it is relatively easy to get an excellent set of charts for these objects.

On the subject of charts, when I started in deep sky astronomy, I went out and bought a chart book containing many thousands of deep sky objects. I found this more confusing than enlightening. With so many objects listed, even very dim galaxies and stars (ones that I could never see in my telescope) are catalogued. These do more to get in away than to assist. I strongly suggest a very simple set of charts to begin with. If you are using the Messier list, chart sets such as “The Year-Round Messier Marathon Field Guide” are available. You can even print out charts designed for Telrad finders right off the web at: http://www.UtahSkies.org/deepsky/messier/charts/messierTelradFrameSet.html. Using simple charts and a retlex type finder (such as a Telrad) it is relatively easy to have success.

Figure 1: Bright deep sky objects in Orion and Taurus

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President's Message

Well here I sit in front of my computer keyboard somewhat overwhelmed with the realization that I am now the President of TAAS. How did I get here? I ask myself that question often about many of the situations I find myself in. Sometimes it is a mystery but this time I actually have some idea about the particular series of events that form the path that led to my current position at TAAS.

As a child I had always been drawn to all things scientific. I did not know why but scientific and technical things were always like magic to me. This interest led me to the topic of space and what was out there. When I was about ten or eleven I came to be in possession of an odd assortment of simple lenses. By holding a couple of them by hand I found that I could make a crude refracting telescope. Scrounging up some masking tape, and paper-towel and toilet paper tubes I fashioned myself a telescope. That night I anxiously took my scope out into the warm Tennessee night to view the heavens. I immediately rediscovered the phenomenon of chromatic aberration. The rainbow of color ringing the moon was not what I expected to see. Undiscouraged I set out to find what the problem was and read about achromatic lenses. Some time later I found what was likely an old binocular objective and was able to construct a much-improved instrument although it was still housed in paper-towel and toilet paper tubes. I was hooked.

Several years later I bought my first commercial telescope. It was a three-inch Newtonian on an altitude/azimuth mount. It was probably a Tasco and despite its small aperture it showed me many an interesting object. Years later I found myself married and busy with life to the point that I had no time for astronomy. College, kids and a career stood between astronomy and me for much of the next twenty years until about six or seven years ago I was shopping in Coronado Mall with my then teen-aged kids when I spotted a Meade E1X 90 on display at the Discovery Store. Almost by impulse I purchased the tiny Mak and soon I was fully back in the astronomy saddle.

I won’t go into all the details about the series of telescopes of ever increasing size but I will talk about how I became involved in TAAS. Now that my astronomy fever was in full swing I started looking at astronomy Websites when I ran across the Albuquerque Astronomical Society. It seemed to me that getting together with like-minded people immersed in all things astronomical was a really good idea.

After joining and attending a few meetings I went to my first Star Party at Oak Flat. I set out my eight inch Dob and started looking for interesting objects in the dark sky. It wasn’t long until the woman who was set-up next to me offered me a cookie (later I learned her name was Karen Keese) and a short time later a bearded fellow visited to look at my scope. He said he was “walking the line” (later I learned his name was Pete Eschman). He took the time to take a peek in my eyepiece and checked the motion. Before he moved along he gave me some advice about adding Ebony Star to some surfaces to improve my Orion’s stiffness.

Over the course of the summer I kept going to events meeting more and more of the people of TAAS. I will never forget when at one Oak Flat Star Party Gordon Pegue stood at his twenty inch Dob and announced “I’m gonna avail myself of the Veil” and shortly thereafter gave me my first glimpse of one of the most gorgeous sights I had ever seen. Although I deeply loved the science and practice of astronomy it was in fact the people of TAAS who with their openness and willingness to share themselves and their love of astronomy with others led me to make TAAS a large part of my life. Volunteering my time to projects and outreach programs was as the old saying goes as easy as falling off a log. I am proud to be part of such a fine group of people and deeply honored to be granted this opportunity to continue to give back to an organization that has given so much to me.

Heather Mann

TAAS General Meeting News

Barry Gordon

The featured speaker at the February 7 General Meeting will be noted astrophotographer David Healy. Mr. Healy has had several articles and photographs published in Sky & Telescope and Astronomy, in addition to contributing most of the photographs in a best-selling book on astrophotography. He is also a most engaging speaker, as attendees at his August ’98 TAAS presentation will undoubtedly remember.

His presentation will be on CCD imaging, its advantages and pitfalls. He will also discuss how he uses CCD imaging to discover asteroids.

As usual, the meeting will begin at 7 P.M. in Regener Hall on the UNM campus, and there will be the customary social hour following Mr. Healy’s talk.

Dan Richey

At the January 10th meeting, Barry Gordon gave a very interesting lecture entitled Chasing the Shadow in which he described his personal adventures all over the world to observe and photograph solar eclipses. The talk was richly laced with slides and was a mixture of a travelogue, a photographic primer and the science of eclipses.
Our last GNTO committee meeting was held on January 8, and was attended by Larry Cash, Ray Collins, Dale Murray, Gordon Pegue and Pete Eschman. The committee feels that our main dome root renovation is about 80 percent completed and the dome is relatively weatherproof again. We decided it was time to proceed with our plans to renovate and enhance the drive motor system on the Isengard telescope, so a deposit has been placed on our order of a SkyWalker system from Astrometric Instruments. A matching funds grant request has been submitted to Home Depot and a grant request for funds to renovate our battery system has been made to the PNM Foundation.

We experienced near-perfect cloud cover for our training sessions on January 17, but the conditions did not stop 8 enthusiastic trainees and 5 more experienced folks who were ready to share their knowledge. Dale Murray conducted the Level I training, while I took care of the Level II session. We would like to thank Larry Cash for making two passes with our road dragger to smooth out the lower portion of Twining Lane.

Our next observing opportunity will be on February 14, followed by our next “new moon” event a week later on February 21. Our next Training sessions will take place on March 13 in conjunction with our Spring Equinox Picnic. I’ll have more details on our training sessions and the picnic in the next newsletter.

If you are thinking about coming down to GNTO, whether for training or observing, please remember that our two loaner scopes are on easy to use dobsonian mounts. Since we have all this great equipment at our facility, you do not need have your own equipment to enjoy GNTO. The comfortable heated Ortega Building will be available for socializing and our Guest Trailer will be available for coffee and hot chocolate. You are encouraged to bring some snack food to share.

GNTO committee meetings are open to all interested TAAS members and our next scheduled meeting is on February 26. We meet at 6:30 P.M. at the Village Inn restaurant on San Mateo just north of Academy. If you have questions about access and availability of GNTO, please contact me (Peter Eschman, gnto@taas.org, home phone: 873-1517, work phone: 277-0020). I hope to see you soon at our observatory.

Telescope Loaner Program

Want to peruse the heavens but you don’t have a scope? Then read on. The TAAS telescope loaner program allows members to borrow telescopes owned by the Society for their own personal use. Typically the loan is one month but can be longer if telescopes are available. There is no charge for this service. Normally, nearly all the telescopes are on loan all the time. This month is unusual. I have a variety of astronomical instruments available for loan. If you’re starting out in astronomy this is a great way to help decide what type of telescope to buy. Right now, I have available for loan the following:

Orion 12 x 63 Binoculars - These are brand-new astronomical binoculars and donated to us by Orion Telescopes. In addition to the binoculars we have a mirror arrangement so that light enters the binoculars after reflecting off a mirror. This makes looking up in the sky much easier since you get to look down while the binoculars look up.

A 5-inch Schmidt Cassegrain telescope - This is a very compact telescope, excellent for travel and camping trips. The telescope itself is only about a foot long but still gives excellent views, especially of the Moon, and planets. It even has a solar filter for viewing the Sun. It packed in a plastic tote box making it exceptionally easy to transport.

A 6-inch Dobsonian telescope - This is a great scope for younger TAAS members or anyone just starting out. It is very lightweight and very easy to use. It is equipped with a telrad finder and a set of eyepieces.

A Meade 8-inch star finder Dobsonian telescope - This is larger and heavier that the 6-inch Dobsonian and is also a fine telescope. This is great for deep sky observing as well as for the moon and planets. If you’re a Society member and would like to try any of these telescopes out please contact me by e-mail at telescope_loans@taas.org or call me at 294-4601.
February Meteor Activity...

February is a relatively quiet month for meteor activity - but a great opportunity to see some showers that are perhaps not as well observed! Although not on the official International Meteor Organization (IMO) ‘Working List of Visual Meteor Showers’, a watch should be kept for any possible xi Bootids. These were first seen by observer George Gliba from February 5/6 to 8/9 in 1997 from the Florida Keys. These were noted as medium velocity meteors with an average magnitude of about 3.6 and a radiant near the star xi Bootes. Xi Bootis is about 8 degrees to the left of the star Arcturus on a star map. The alpha Centaurids (ACE) reach a maximum on February 8th with a radiant at 210 degrees, ie. RA 14h 00m, Dec -59, which is roughly 50 degrees south of the bright star Spica in the constellation of Virgo. These meteors can be seen from about January 28th until February 21st. These are average velocity meteors at about 56 km per second. ZHR rates at maximum will be about 6 meteors per hour, and up to 11 on March 1st. At maximum, the radiant will be at 168 degrees, ie. RA 11h 12m, Dec +16, which is very near the star theta Leonis, the lower right star in the triangle at the end of Leo. These are slow meteors with a velocity of about 23 km per second. ZHR rates at maximum will be about 2 meteors per hour - but they will be quite distinctive. A map showing the movement of the radiant can be found at http://www.imo.net/calendar/cal03.html#delta-Leonids. The gamma Normids (GNO) start to become active about February 25th, although won’t reach a maximum until about March 13th. These are fast meteors with a velocity of about 56 km per second. ZHR rates at maximum will be about 8 meteors per hour, but rates in February will be lower. A map showing the radiant can be found at http://www.imo.net/calendar/cal03.html#gamma-Normids. The Virgins (VIR) started to become active about January 25th and last until around April 15th. These are almost slow meteors at about 30 km per second. ZHR rates are about 5 meteors per hour. On January 30th, the radiant was at 25 degrees, ie. RA 10h 28m, Dec +16, which was about 6 degrees up to the left of Regulus in Leo on a star atlas. The radiant moves through the month of February - positions at intervals are as follows: Feb 10 165 +10 ie. RA 11h 00m Dec +10 Feb 20 172 +6 ie. RA 11h 28.2m Dec +6 Feb 28 178 +3 ie. RA 11h 52.2m Dec +3 These are from Table 6 of the IMO 2004 Meteor Shower Calendar. The calendar is very useful - print yourself otf a copy from http://www.imo.net/calendar/cal04.html
April 2004

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ATM Workshop

Ray Collins/Mike Pendley
atm@taas.org

The Amateur Telescope Making Workshop meets the first and third Wednesdays of each month at Valley High School, 1505 Candelaria—the north side of Candelaria, just west of 12th street. The meetings begin at 7 P.M. and are in Building E, Room #3.

TAAS General Meeting

Saturday, February 7, 2004
7:00 P.M.
Regener Hall, UNM Campus

Subject
CCD imaging—Advantages and Pitfalls.

Speaker
David Healy

Notes
GNTO = General Nathan Twining.
GNTO Training = GNTO Observing and Training.
UNM = University of New Mexico Observatory. Call the TAAS hotline @254-8227, or the UNM hotline @277-1446 to confirm, or unm_coordinator@taas.org.
ACSA = Albuquerque Coffee Shop Astronomers. Contact Sammy Lockwood for information or visit www.taas.org and select sidewalk astronomy.
ATM = Amateur Telescope Making. Call Michael Pendley for information @296-0549, or atm@taas.org.
P & A = UNM Physics and Astronomy. Corner of Lomas and Yale.
School Star Party.

The Official Newsletter of The Albuquerque Astronomical Society
Educational Outreach

Double Eagle Elementary Wrap up 1/22/04

Clear dark skies, a huge turnout, great school involvement, lot’s of pre-planning, and terrific TAAS docents made for one of the better TAAS Educational Outreach events in memory. The school provided a dark yet accessible scope field, and pizza for docents. The PTA collected over $165 in donations towards TAAS Outreach during the night. About 350+ attended this well publicized event. Hat’s off to Cindy Cronin and Ty Tran with the PTA for organizing a great host of school volunteers, and to Jonny Sanders and Vice Principal Todd Resch for their extra efforts.

TAAS docents rose to the occasion with a field of 12 telescopes, and two indoor demos. TAAS docents included Dale Murray, John Laning, Brock Parker, Larry Cash, Barry Gordon, Bruce Levin, Gordon Pogue, Sam and Barbara Thiem, Hunter and Jackson Mortley, Walter, Ryan, and Jerry Dunn (with their new 6” Dob), Shannon and Heather Mann, Rebecca Purvis on comet making, and Barry Spletzer with his new light demo! Kudos to everyone who came out, and made it a really special night. I should have photos on the website sometime this weekend.

Our next school event is only one week away. Manzano Vista Middle School in Las Lunas is pulling out the stops for our visit there on Thursday, January 29th. This will be a community-wide event, with a very large turnout expected. Since this is our only out-of-town event of the year, I’m a little nervous about having enough scopes for this one.

I don’t usually ask for this, but please let me know if you are planning to attend Manzano Vista, so I can get a rough idea ahead of time. As usual, maps, directions, and info are at www.taas.org

Thanks, and have a great weekend, Sammy

Outreach Wrap-ups

1/20/04 - Double Eagle Elementary (daytime) - Sammy Lockwood gave a series of 7 Starlab shows to the entire 4th grade class, on this snowy school day. Over 200 kids and teachers studied constellations in preparation for the TAAS Star Party scheduled for later in the week.

Two TAAS Outreach Events in February

Please join us as TAAS Educational Outreach continues its marathon of year-end star parties in February.

On Thursday, February 12, TAAS heads to Salám Academy, 3939 San Pedro NE, Bldg E.

Then on Thursday, February 9, TAAS returns to Monte Vista Elementary, 3211 Monte Vista Blvd. NE.

So far in the 2003-2004 school year, TAAS Educational Outreach has held 10 separate events, bringing science and astronomy to over 1900 kids, parents and teachers. There are only 6 scheduled events remaining, so if you have been meaning to come out to an outreach event, (and I hear that all of the time), then your time is running out.

For details, maps and more information on these, and other TAAS Educational Outreach events, including photo wrap-ups of several of our shows, please visit our website at www.taas.org/education

Letter to the Editor

It has come to my attention that a Christmas article that I wrote for the TAAS website entitled “What Was the Star of Bethlehem?”, drew considerable criticism at the January meeting of the TAAS Board of Directors. So much so, that it was suggested by at least one board member that my future postings and amendments to the website should be screened beforehand.

As webmaster, I am bound by the TAAS Articles of Incorporation, Amended Bylaws, Resolutions, the UNM Acceptable Computer Use Policies, the UNM Business Policies and Procedures Manual, and basic social laws of decency and respect to others. Neither my Christmas article, nor any of the other 3000 pages and files in 170+ subdirectories of the TAAS website, violate these rules.

My article, like everything else that I have designed on the website, is intended as a free and timely expression of astronomical information and topical ideas. Using this criteria, it is reasonable and acceptable for an astronomy club to publish a story about the Star of Bethlehem at Christmas, it is reasonable and acceptable to give biblical references, among others, on such a story, and it is reasonable and acceptable for the author to give his/her background that pertains to that story.

It is never my intention for the work I do for this club to cause alarm amongst my fellow TAAS members. If my work raises questions, please contact me, and let me know:

Sammy Lockwood
TAAS Webmaster

The Official Newsletter of The Albuquerque Astronomical Society
I've put together a few simple charts with some of the easier objects to get you started. Figure 1 is a chart of Orion and Taurus. Orion has the brightest nebula in the sky (M42/43) along with several multiple stars. Taurus has some of the best open clusters and the brightest Messier object, the Pleiades. Orion is prominent now and will remain so into the spring. The Orion nebula is easy to find in the center of Orion’s sword. The center of the nebula has a famous multiple star, the trapezium with four bright and distinct stars and one or two dimmer ones sometimes visible. If you are just starting out in astronomy, the Orion nebula is a great place to begin.

Just off the horns of Taurus are the open clusters M35, M36, M37 and M38. For my money, M37 is just about the best open cluster in the sky and definitely worth a look. You might notice that M1 is on this chart as well. This is the famous Crab Nebula. It is in a relatively easy location since it lies right next to the star defining the southern horn of Taurus. You may have seen beautiful color pictures of it. Like most nebulae, through a 10 inch telescope it is dim enough that you will likely pass right by without noticing it. As a beginner, it is hardly worth looking for. The same is true for M78 on the chart.

Figure 2 shows the constellations Cygnus, Lyra, and Hercules. These will become visible later in the spring. Some of my favorite objects, planetary nebulae, are visible here. M57, the Ring Nebula, is one of the more famous and easy to find deep sky objects lying between two closely spaced, naked-eye stars. When you find it, you will notice that, although bright, it is surprisingly small, as are most planetary nebulae.

The head of Cygnus swan is perhaps the most famous double star in the sky, Alberio. This is a popular object even for our in-town star parties. On the other side of Alberio from M57 is the dumbbell nebula (M27). This is typical of the “other type” of planetary nebula, a nearly circular fuzzy spot, although surprisingly small, as are most planetary nebulae.

Figure 3: Bright deep sky objects in Sagittarius and Scorpius
Dear Members,

I had the pleasure last fall of attending a fascinating lecture in the LodeStar planetarium. TAAS member Aileen O'Catherine, LodeStar's Education Manager, had been skillfully plucking prominent astronomy lecturers who were in town for UNM colloquia and bringing them over to LodeStar to give evening lectures. I couldn't resist a lecture entitled "Searching for Dark Matter in the Milky Way" given by Daniel Snowden-Ifft of Occidental College in Los Angeles. Neither, it seems, could members of the Santa Fe Astronomy Club, who traveled down from as far away as Las Vegas, New Mexico, to attend the lecture. We were not disappointed.

Dr. Snowden-Ifft designed and built (with the help of undergraduate students!) the first DRIFT (Directional Recoil Identification From Tracks) detector, which is being used in the search for sub-atomic particles called WIMPs (Weakly Interacting Massive Particles). WIMPs are one of the most likely candidates for the building blocks of dark matter, that mysterious substance that is widely believed to make up 90 percent of the matter in the universe. He and his breakthrough technology are on the cutting edge of science, but he was down-to-earth, congenial, and funny—and he made the material accessible even to someone like me who doesn’t have a science background.

The most fascinating thing I learned from the speaker was that we would not be here if it were not for the clumping nature of dark matter. Dark matter, it seems, is not homogenous, and it is this characteristic that contributed to the formation and containment of galactic structures throughout the known universe. "Halos" of dark matter are the horse corrals of the universe, keeping those undisciplined galaxies from galloping out willy-nilly across space.

For 2004, Aileen has put together an incredible series of evening astronomy lectures in the planetarium. This is a wonderful opportunity for TAAS members and others to enjoy an evening of learning. Tickets are only $5 and can be purchased at the door. If you would like to receive detailed press releases about each of these lectures as they approach, e-mail me at pr@taas.org and I will put you on my e-mail notification list. Some of the dates are tentative, but will be firmed up shortly. The finalized lecture schedule will also appear on LodeStar's website at www.lodestar.unm.edu. See you under the dome!

Feb 18 Jack Brandt
Comets and Stardust

Feb 26 Larry Crumpler
Making Tracks on Mars: Latest Results from the MER Mission (this one is in the Museum's Dynathet)

Mar 16 (tent) Gus Sinnis
Astronomy at a Trillion Volts-the Milagro Gamma Ray Observatory

Mar 19 (tent) Stephen Keil
Building the World's Largest Optical Solar Telescope

Apr 21 Guy Spitale
Space Environments: Space Junk

Jun 15 Jayne Aubele
Venus

Jun 22 Joel Mozer
Forecasting Space Weather

Aug 17 Debra Shepherd
Cosmic Nurseries-How Stars and Planets Form

Sep 22 (tent) ?

Oct 19 Angie Richman
Measuring Light Pollution: The Sky as a National Treasure

Dec 21 (tent) ?

The TAAS hotline is now bigger and better! The hotline now offers updates on TAAS monthly meetings (press 1), TAAS special events (press 2), and TAAS school star parties (press 3). If you have a special TAAS event that you would like to announce on the hotline, e-mail your announcement to sammy@taas.org.

The Official Newsletter of The Albuquerque Astronomical Society

Karen Keese

The Official Newsletter of The Albuquerque Astronomical Society

Page 8
NASA’s Space Place
Flying in Formation

Patrick L. Barry

You can almost see the tabloid headlines now: “Mid-west farmer spies UFO squadron flying in formation!” “First signs of imminent alien invasion,” the subtitle will read.

If only this fictional farmer had been keeping up with NASA’s Space Place column, he would have known better. The string of white dots moving in formation across the pre-dawn sky were satellites, not alien spaceships.

Beginning next year, a series of challenging, high-precision launches will insert four satellites into orbits with just the right altitude, position, and orbital inclination to follow in lock-step behind NASA’s Aqua satellite (launched in May 2002). Scientists have dubbed this squadron of satellites the “A-Train.” Along with Aqua, the celestial parade will include CloudSat, CALIPSO, PARASOL, and Aura.

In April 2004, NASA will launch CloudSat, an Earth-observing satellite with unique cloud-measurement abilities. These measurements will fill an important role in our understanding of global climate change, making long-term climate change scenarios more accurate and dependable.

So why bother flying in formation? By passing over the same swath of land within seconds or minutes of each other, the satellites will give scientists snapshots of essentially the same scene using a total of 14 different measuring instruments. CloudSat alone carries only one: a millimeter-wavelength radar sounder.

This sounder—the first of its kind put into orbit—lets scientists see a vertical “slice” of the atmosphere that shows clouds, water, and ice between the ground and 30 km altitude, with a vertical resolution of 0.5 km. Even by itself, this instrument would provide an important and unique view of Earth’s atmosphere, since the accurate portrayal of clouds is one of the glaring weaknesses with current simulations of climate change.

But this cloud data is even more valuable when combined with measurements from the other satellites in the A-Train—tor example, air temperature, trace gases, and radiation into and out of the atmosphere. Scientists can then see connections between, say, temperature and the resulting behavior of clouds. A better understanding of these connections is one of the most sought-after goals of climate research, because changes to global cloud cover would, in turn, have a feedback effect on global temperatures.

The real story of this satellite squadron may not make the tabloid headlines, but at least there’s evidence that the imminent threat of climate change is real, which is a lot more than you can say for alien invaders!

Learn more about CloudSat and the A-Train at cloudsat.atmos.colostate.edu. Kids (and grownups) can do interactive cloud picture scrambles and learn “Cloudspeak” (the names of different kinds of clouds) at The Space Place, spaceplace.nasa.gov/cloudsat_puz.htm.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.
Ivory Basement can’t

the dumbbell is brighter than any of the other fuzzy planeteries. On the right side in the chart is M13 also known as the Great Hercules Cluster, and for good reason. It is nothing short of glorious. Don’t miss it.

Figure 3 shows the southern sky on summer nights with Sagittarius in Scorpius. From our vantage point, Sagittarius is in the direction of the center of the Milky Way and there are many deep sky objects here. M22, just off the top of the teapot, is the brightest globular in the Messier list. The teapot itself has four more globular Messiers. Moving up like steam out of the teapot spout is a string of famous deep sky objects including M8 (Hourglass or Lagoon Nebula), M21 (Trifid Nebula), M17 (Omega or Swan Nebula) and M16 (Eagle or Star Queen Nebula) along with clusters M18, M21, and M23. One of the easiest ways to enjoy Sagittarius is to just sweep along the brightest band in the Milky Way and see what passes through the eyepiece. Over in Scorpius is the bright globular M4 and a nearby dimmer globular M80. Both of these are close enough to the red giant Antares to make them easy targets.

Of course, there’s much more up there. In fact, none of these charts even show a single galaxy and about 80% of all deep sky objects are galaxies. These are just to help you get started. Even with all this preparation: the right hardware, knowing what to look for, simple charts, and finding a dark site, your success in is not assured. My single most important bit of advice is to find some experienced and willing astronomer to go with you and help get you started. I personally am willing to help anyone get going in this rewarding hobby and I am sure that there are other TAAS members available as well.

If you want to get a real jumpstart in deep sky astronomy, the annual TAAS Messier Marathon is a great way to do it. For the Messier Marathon, we gather as a club at GN10 and each individual attempts to find as many of the 110 Messier objects as possible during the course of a single night. This year’s Marathon is on March 20th. As usual, I will be attending the Marathon with the sole purpose of helping folks bag as many of their deep sky quary as possible.

I hope this series of three articles has been helpful and will inspire you towards your astronomical goals. Keep in mind that at any state in your development in entering this hobby there are a number of ready and willing TAAS members at your disposal.

ATM Class

Here are a few pictures of the scopes I built recently with your (ATM Class) help. An 8 inch and 4.5 inch reflector.

Thanks for the assistance.

Tony Allred
In cooperation with the UNM Campus Observatory, The Albuquerque Astronomical Society will be hosting its “Night of the Transits” star party at the UNM Campus Observatory on Saturday night, March 27th. TAAS members are encouraged to bring their telescope and share in the excitement of this reasonably rare event that’s described in more detail below. The members of the public who decide to stick it out till later in the evening will be treated (weather cooperating of course) to a visual treat!

Brought to you by the Jupiter Transit Authority, the night of March 27th promises to be a spectacular display of Jovian satellite orbital mechanics. Io, Europa and Ganymede orbit Jupiter with an orbital period resonance of 1:2:4 respectively. What does this mean to the casual Jupiter observer? Simply this: that periodically, the timing of disk transits (where the Galilean satellite is in front of the planet) and shadow transits (where the shadow of the satellite is projected onto the planet) allows for the occurrence of “triple shadows” - events where the shadow transits of each of these three satellites may be observed simultaneously! For an interesting graphical depiction of the resonance phenomenon, navigate to http://www.physics.ucsb.edu/~mhlee/resonances.html and click on the graphic image of the Galilean satellites. For a much more technical article on the subject of the resonance’s and their implications, see http://arxiv.org/PS_cache/astro-ph/pdf/0210/0210589.pdf.

Between now and early 2015 there are 4 “triple shadows”. Times are for the beginning of these events are as follows:

28 Mar 2004, 8:00 UT
12 Oct 2013, 4:31 UT
3 Jun 2014, 19:02 UT
24 Jan 2015, 6:27 UT

Note: to convert UT to Mountain Standard Time, subtract 7 hours and if the result is negative, add 24 hours. To convert UT to Mountain Daylight Time, subtract 6 hours instead of 7.

For the event which is the subject of this article, here’s the time (MST), date, satellite and type of event:

9:59 P.M. 3-27-04 Callisto Shadow transit start
10:44 P.M. 3-27-04 Ganymede Disk transit start
11:59 P.M. 3-27-04 Io Disk transit start
12:32 A.M. 3-28-04 Io Shadow transit start
1:00 A.M. 3-28-04 Ganymede Shadow transit start Beginning of “triple shadow”
1:18 A.M. 3-28-04 Callisto Shadow transit end
End of “triple shadow”
2:05 A.M. 3-28-04 Ganymede Disk transit end
2:14 A.M. 3-28-04 Io Disk transit end
2:48 A.M. 3-28-04 Io Shadow transit end
4:23 A.M. 3-28-04 Ganymede Shadow transit end

Our own moon, which has a 42% waxing crescent phase (very nearly first quarter) on the night of the 27th, will not interfere with the “triple shadow” as it sets at 12:14am. It will however, be a pleasing target for public observation earlier in the evening.

One last note: shadow transits are easy to observe, even in small telescopes with moderate magnification. Disk transits on the other hand, are a bit more difficult in that they generally require higher magnification, steady seeing and contrasty optics.
Minutes of the Board

THE ALBUQUERQUE ASTRONOMICAL SOCIETY
BOARD OF DIRECTORS MEETING. JANUARY 15, 2004

Present: Dale Murray, President; Heather Mann, Vice President; Shannon Mann, Treasurer; Elizabeth Burki, Secretary; Peter Eschman, GNTO Director; Board Members: Larry Cash, Judy Stanley, Robert Hufnagel, Becky Purvis, Ray Collins & Gordon Pegue. Visitors: Barry Gordon & Steve Schneider

1. Greetings to new Board Members: Robert Hufnagel, Gordon Pegue, Heather Mann.

2. Review of December minutes: accepted as read.

3. Steve Snider noted that Bob Hufnagel had spent $1,367.19 to transport the donation of glass optical mirror blanks from Pennsylvania to Albuquerque. Motion passed that Bob be paid immediately using general fund monies and that the tax-deductible donations from the membership be placed into a “Special Projects” fund.

4. Treasurer’s Report:
   a. Shannon Mann reported that a donation of $4,000 from Sandia Labs was placed in the education fund. Thanks to Barry Spletzer for writing the proposal.
   b. There was a reduction in the general fund as a result of covering costs of the Solstice Banquet. We also have several new members and renewals of members.
   c. The tax report will be done in the coming weeks.
   d. Gordon Pegue noted a TAAS by-law specifying that the treasurer and vice president conduct an annual accounting of TAAS assets.

5. GNTO Report:
   a. Pete Eschman reported that the GNTO committee met on 1/8/04 with Larry Cash, Ray Collins, Dale Murray, Gordon Pegue and Pete Eschman attending (Karen Keese e-mailed information in lieu of attending).
   b. The main dome roof renovation is 80% complete.
   c. A $1,000 deposit will be made toward a servo control and go-to tracking system for the Isengard telescope, which can be used at the viewers discretion. The go-to system will initially require a dedicated PC but will later become self-contained. We will be the only amateur astronomical organization with a 16” telescope so equipped.
   d. A grant request was submitted to the PNM Foundation for $5,500 to upgrade and maintain the GNTO electrical system. The committee is still working on a general and then a specific site map of GNTO.

6. Old Business:
   a. Motion was made and carried to approve and/or activate all resolutions passed by TAAS board in 2003.
   b. January’s general meeting was a success thanks to the delightful and informative presentation by Barry Gordon on the vagaries of chasing total solar eclipses around the world.
   c. Ray Collins proposed a review of the Solstice banquet. While it was a successful gathering there were concerns about the quality of the enchiladas and the vegetarian lasagne and the crowded conditions as the room was half the size of what was promised.

7. New Business:
   a. Karen Keese would like us to schedule one or more joint LodeStar/TAAS functions at LodeStar.
   b. David Healy, an astrophotographer, will be the guest speaker at the February general meeting.
   c. Proposal made that we ask Jim Dale to present slides and demonstrations of astrophotography with a fixed camera, especially the techniques needed to capture star trails.
   d. We need to consider purchasing a new, quality printer dedicated only to TAAS jobs. The cost will be approximately $2,000. There was some printer trouble last month. Barry Spletzer had to use a printer service to get out the January newsletters.
   e. Debate continued as to whether we should go to a quarterly newsletter with monthly updates or to continue with our present monthly newsletter. There was concern voiced that our website was “competing” with the newsletter for members’ attention.

8. Education:
   a. There will be multiple shadows and transits of Jupiter’s moons on March 27,2004 starting with Ganymede. Jupiter will be high in the sky by 9 PM. The Royal Astronomical Society of Canada’s website has extensive information about the event. Proposal was made that TAAS sponsor an educational event at UNM to take advantage of the Jupiter show.
   b. Astronomy Day: A task force has not yet formed. We need an “owner” and a planning team ASAP. Suggestion made to contact TAAS members by e-mail and request volunteers for the project. Questions were raised as to where the Astronomy Day event should be held. Suggestions: Coronado Mall; LodeStar; the Flea Market with the goal of reaching out to the public. Another suggestion is to combine our TAAS event with a LodeStar event.

Meeting was adjourned at 9 PM.
Societ y Sta ff

Board of Directors - board@taas.org

• President: Dale Murray
• Vice President/Gen Mtg Coord: Heather Mann
• Secretary: Elizabeth Burki
• Treasurer/Membership Services: Shannon Mann
• Director/Observatory Director: Pete Eschman
• Director/Membership Director: Judy Stanley
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• Director: Larry Cash
• Director: Rebecca Purvis
• Director: Gordon Pegue

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Public Relations Officer: Karen Keese
Education / TAAS Web Master: Sammy Lockwood
Newsletter Editor: Dan Richey
Telescope Curator: Barry Spletzer
TAAS Archivist: Pat Appel
TAAS Librarian: Dawn Gray
ATM Coordinator: Ray Collins
ATM Coordinator: Michael Pendley
UNM Observatory Coordinator: Jay Harden

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Some restrictions apply. Offer valid for current TAAS members. Offer is first come first served. Late comers will be put on a waiting list. Neither TAAS nor the telescope curators will be held liable for any lost sleep or other problems arising from the use of TAAS scopes.

BORROWERS ARE REQUIRED TO ENJOY THE TELESCOPES.

Erratum

In the February 2004 issue under the byline Color, an article had some factual errors. Mark and Elaine Kroska are spouses, not siblings, and have happily been so for 25 years. I am sorry for any confusion or problems this might have caused. Ed.

Wanted: Milburn or Mettler wedge for Meade 10" LX-200. Please contact Robin Peal at 505-792-4555 or robinp@mindspring.com.

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MEMBERSHIP: You may request a membership application by sending e-mail to membership@taas.org or calling (505) 254-TAAS(8227). Applications may also be downloaded from the Web site. Annual dues to The Albuquerque Astronomical Society are $30/year for a full membership and $15/year for a full time student (high school or less) membership. Additional family members may join for $5/each (student and family memberships are not eligible to vote on society matters). New member information packets can be downloaded from the website or requested from the TAAS Membership Services Director at membership@taas.org You may send your dues by mail to our newsletter mailing address or e-mail address to treasurer@taas.org (treasurer@taas.org) with your new address should you move!! Please provide the Treasurer with your new address in order to receive the newsletter. Changes of address should be made 60 days before your mailing date to ensure that you receive your newsletter.

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