From the Ivory Basement

14. How Do I Get Started in Astronomy? Part I - The Hardware

Barry Spletzer

Over the past year I have written about optics and colors; syzygies and solstices. This month is somewhat of a departure. Rather than delve into the mysteries and details of the cosmos, I will confine myself to (in Carl Sagan's words) the shores of the cosmic ocean. Specifically, I will discuss getting started in astronomy. The question of “How do I get started in astronomy?” comes up frequently, primarily among new TAAS members. What better place than The Sidereal Times to answer this. This is a two part series. This part talks about hardware, that is, the stuff you need to get to get a look at the sky. Next month I’ll cover what to do with all the hardware.

When I started getting serious about astronomy, about 10 years ago, I bought a used 10 inch Dobsonian, grabbed an old handbook of stars I had laying around, found a big impressive looking galaxy in the book, went out in my backyard, pointed the telescope at it and saw nothing. It was a depressing start. As it turns out, I did several things right but enough things wrong to make my effort futile. Hopefully, this article will help someone in a similar position avoid these problems.

The short answer is, get yourself a telescope, a finder, some eyepieces, some star charts, and a knowledgeable friend. The long answer, and the bulk of this article is recommendations on what to look for in all these areas. I have divided my advice into sections, hopefully for ready reference.

The Telescope - For most folks, this is the most obvious thing you need to get started. It’s big, it’s impressive, and it’s the first thing you see when you encounter an astronomer in the field. The type of telescope you need depends on the type of astronomy you wish to do.

For most purposes, there are two types of astronomy: planetary and deep sky. Planetary astronomy involves the planets and other objects within the solar system. The planets are relatively bright and can be viewed with small telescopes. Unfortunately, there are not very many of these so the list of observable objects is quite short. Most amateur astronomers spend much more time on deep sky astronomy, that is, observing objects beyond the solar system. This includes hundreds of galaxies, globular clusters, open clusters, diffuse nebulae, and planetary nebulae. I will concentrate on deep sky astronomy since it is the most common.

All these fascinating extra galactic objects are informally referred to as “faint fuzzies”. This is because they tend to be quite dim and typically appear as a fuzzy patch rather than any bright point like a star. The dimness of deep sky objects is a primary issue. Deep sky objects are typically 1000 times dimmer than bright stars. This was one of my mistakes when I was starting out, I simply did not understand that the glorious and brilliant pictures of galaxies are a long ways from what we see in the sky. Almost without exception, deep sky objects are too dim to see with the naked eye. Most of them are even too dim for binoculars.

Deep sky astronomy requires a larger diameter telescope because deep sky objects are quite dim. The larger telescope is needed to gather more light and make these “faint fuzzies” brighter. The good news is that a larger telescope can be used for the planets or deep sky objects. The bad news is that bigger costs more.

Since we need to brighten faint fuzzies by a factor of 1000 or so, the telescope needs to gather 1000 times as much light as your eye. An 8-inch mirror collects 1000 times as much light as your 1/4 inch pupil. It really pays to spend your money on the mirror rather than on other gizmos, such as motorized or computerized scopes. The mirror diameter is by far the most important factor. I strongly suggest a simple Dobsonian scope. A dobsonian telescope is a simple plywood and cardboard affair.
President's Message

Some twenty months ago, I asked if any reader would care to contribute a favorite poem for inclusion here. And now, one has at last surfaced! I admit that I a newcomer to Billy Collins’ circle of fans. Also, I am not aware of any family ties between us.

A Night-Piece

The sky is overcast
With a continuous cloud of texture close,
Heavy and wan, all whitened by the Moon,
Which through that veil is indistinctly seen,
A dull, contracted circle, yielding light
So feebly spread, that not a shadow falls,
Chequering the ground – from rock, plant, tree or tower.
At length a pleasant instantaneous gleam
Startles the pensive traveller while he treads
His lonesome path, with unobserving eye
Bent earthwards; he looks up – the clouds are split
Asunder, – and above his head he sees
The clear Moon, and the glory of the heavens.
There, in a black-blue vault she sails along,
Followed by multitudes of stars, that, small
And sharp, and bright, along the dark abyss
Drive as she drives: how fast they wheel away,
Yet vanish not! – the wind is in the tree,
But they are silent: – still they roll along
Immeasurably distant; and the vault,
Built round by those white clouds, enormous clouds,
Still deepens its unfathomable depth.
At length the vision closes; and the mind,
Not undisturbed by the delight it feels,
Which slowly settles into peaceful calm,
Is left to muse upon the solemn scene.

– William Wordsworth

I spent a large part of today at the Dallas Museum of Art. While I am absolutely certain that I do not understand Art, I come away from this museum each time with the conviction that the artist, like the poet, exposes me to a vision of the Cosmos that I need. In my science classroom I celebrate the reasoned side of science – William Wordsworth

I could do no better than to reprise one more poem that appeared here almost two years ago

President's Message

Ray Collins

The Official Newsletter of The Albuquerque Astronomical Society
TAAS General Meeting News

ELECTION OF TAAS OFFICERS
AT THE JANUARY 10, 2004, ANNUAL MEETING

Please mark your calendar now for our first general meeting of 2004 on Saturday, 10 January. This is the Annual Meeting called for in the by-laws electing the four officers

**Article V - Meetings of The Membership**

**Section 1. Annual Meetings**

The annual meeting of the membership shall be held during the month of January in each year, or within thirteen months from the previous annual meeting, at a date, time, and place to be determined by the Board of Directors for the purpose of electing Directors and for the transaction of such other business as may come before the meeting. If the election of the officers and members of the Board of Directors is not held on the day designated herein for any annual meeting of the members, or at any adjournment thereof, the Board of Directors shall cause the election to be held at a meeting of the members as soon thereafter as is convenient.

The nominating committee, consisting of Gordon Pegue, Larry Cash and Ray Collins, is very pleased to present the slate of Officers for the coming year:

- **President** –– Dale Murray
- **Vice President** –– Heather Mann
- **Treasurer** –– Shannon Mann
- **Secretary** –– Elizabeth Burki

Many TAAS members are not able to attend general meetings, and this has precipitated near crises in the past, when the required quorum has barely been achieved.

**Section 6. Quorum Requirements for Members of the Membership**

Twenty percent of the current membership of the corporation entitled to vote, represented in person or by proxy shall constitute a quorum at a meeting of members.

We very much hope that you will be able to attend the January 2004 monthly meeting, at which we will fulfill the requirement of the Corporation’s By-Laws by electing our officers for 2004. If you are a Regular (i.e. not Family or Education) member, and believe you may be unable to attend the January meeting, please provide your printed name and signature on the Proxy Ballot below and mail it to;

Shannon Mann, Treasurer
P.O. Box 50581
Albuquerque, NM 87181-0581. If you are then able to attend, you may either let your Proxy stand or rescind it to vote in person.

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**PROXY BALLOT**

I, ________________________________, a full (“Regular”) member with voting privileges of The Albuquerque Astronomical Society, hereby authorize Ray Collins to cast my vote at the January 10, 2004, Annual Meeting of the Society, or any subsequent rescheduled date for that Meeting. This Proxy Vote shall apply to all matters that come before said meeting, including but not limited to the electing of officers for the corporation.

Signed: ____________________________  Date: __________________
### TAAS Website News

**Sammy Lockwood**

**The Fight against Spam Bots**

If you’re like most folks, you get a lot of spam, i.e., unwanted e-mail, including everything from “personal” enlargements to pleas for help from African bankers. A study for the Center for Democracy and Technology showed that that 97% of e-mail addresses on spam lists are obtained from websites. Special programs called “Spider Bots” search thousands of websites each day, compiling e-mail addresses, and selling these lists to spammers. Although there bills in congress working to help us with spam (HR 1933, and S 1233), these bills will die on the vine if not completed by the end of this Term in 2004.

Therefore, I am working on strategies at www.taas.org to foil these spider bots.

1 - I am removing “raw” e-mail addresses from the taas website. Entries like PR@taas.org will no longer appear on the website, but links to addresses will remain linked.

2 - Within these links, I am using HTML coders in place of text addresses. Using this kind of coding, my e-mail address looks like “sammy@taas.org” to a spider bot, but appears normal to you.

For the most part, these changes should be transparent to you, but hopefully will help our privacy.

**TAAS.ORG Trivia**

In mid-November, I started tracking who visits our website, and have produced some “interesting” facts about www.taas.org.

1 - Visitors to our website include browsers from Norway, Italy, the Netherlands, Peru, Germany, Singapore, The United Kingdom, and Canada, plus a variety of visitors from unknown domains.

2 - Among those surfing the web, 63% enter the TAAS website thru links from other sites, 33% enter thru search engines.

3 - Google is the search engine most used to find our site, followed by MSN Search, and Yahoo.

4 - 81% of our visitors use Internet Explorer, 18% use Netscape.

5 - 87% of our visitors use Windows, 5% use a MAC.

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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 & Winter Solstice Banquet

**Saturday, December 13, 2003**
**7:00 P.M. - 9:30 P.M.**

**Holiday Inn**
**2030 Monahal NE**
**Just East of University**

Mail your RSVP & payment to:
(payable to TAAS)
Ray Collins, 823 Fitzgerald Road NW
Albuquerque 87107
$10 per TAAS member/$10 per (1) guest by December 6th. Additional guest @ $18.

### 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.
TAAS Outreach to Hoover December 18

TAAS heads to Hoover Middle School on Thursday, December 18, as our Educational Outreach program prepares to enter high gear for the coming months.

Hoover Middle School is located at 12015 Tivoli NE. To get there take Juan Tabo to Golden Gate (which is just north of the Lowe’s near Candelaria), and follow Golden Gate eastbound until it dead-ends at the school. We’ll be set-up on the basketball courts on the north side of the school. There will be signs pointing to the courts, and a map is at www.taas.org.

Since our hectic start in September with 4 events in 4 weeks, I’ve only scheduled one event a month through most of the fall, giving us all an easy pace through the holidays. But starting in January, I’ve scheduled 2 events per month through March, in addition to several smaller “one on one” shows with an assortment of Girl Scout troops throughout the city.

Griegos Elementary became our first “cloud out” of the year last month. I am working with TAAS member and school principal Tom Gramm, to arrange another attempt in April.

TAAS Sponsors 3 Girl Scout Troops

TAAS Educational Outreach is currently sponsoring one Girl Scout Troop in the Albuquerque area, and will soon sponsor 2 more. Girl Scout Troop 3109 was awarded a $100 TAAS sponsorship last month, which will go towards that troop’s general program fund. We are also working with the Girl Scout Council office to sponsor 2 other local troops.

Training for the “Sky Search” merit badge will begin next month for at least two local troops, including Troop 3109. Several Girl Scout leaders have contacted TAAS this fall, and are interested in beginning their training once Jupiter and Saturn become visible before bedtime.

Because we had two GNTO committee meetings in October, I have no committee reports for the month of November. Our two observing sessions took place on November 15 and 22, with Gordon Pegue handling the arrangements for the event on November 15 and Dale Murray in charge of the event on November 22.

The event on November 15 had a relatively low turnout, perhaps due to the threat of clouds and wind. As it turned out viewing conditions were good, and the only negative impact was a relatively early moonrise around 10:30 P.M. Observers included Jeff Bender, Larry Cash, Kay Collins, Pete Eschman, Randy and Catherine Gauntt, Bob Hufnagel, Dale Murray and Gordon Pegue. We would like to thank Larry for taking the time to drag the road to smooth out some of the bumps. Because of the early moonrise, most of us made it back to town earlier than usual, although we still had plenty of time for some good observing. It really makes a difference when our sunsets are so early this time of year, and the conditions usually make it well worth the drive, even if it is only for 4 to 5 hours of dark conditions.

An initial report is that high wind and a corresponding low viewer turnout plagued the event on November 22. I was out of town when this event took place, and as I write this, I find that others are now out of town for the holidays, so I am having difficulty getting more information on this event.

Our next observing dates are scheduled for December 20 and January 24, while our next Training session will take place on January 17. The event on December 20 will be our next “new moon” observing opportunity at GNTO. The training session on January 17 will concentrate on use of the Isengard 16 reflector and other loaner scopes at GNTO. I will have more details on the training session in the newsletter article for next month.

When planning for observing at GNTO, please remember that we have several other telescopes in addition to the Isengard reflector. The two GNTO loaner scopes are 16” and 6” reflectors, each of which is on an easy to use dobsonian mount. Since we have all this great equipment at our facility, you do not need have your own equipment to enjoy GNTO.

GNTO committee meetings are open to all interested TAAS members and our next scheduled meeting is on January 8. Committee meetings are held on Thursday, 9 days before our monthly TAAS meeting (in this case, the holiday meeting). 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, gnito@taas.org, home phone: 873-1517, work phone: 277-0020.) I hope to see you soon at our observatory.
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.

Dial 254-TAAS for Updates

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.

UNM Report

Jay Harden, UNM Campus Observatory Coordinator
unn_coord@taas.org

Oct 31: Was Halloween night and mostly cloudy. We did have 10 viewers. Docents: Becky, Brock & Jay.

Nov 7: Was 100% cloudy at sundown. We thought there would be no viewers. We had 22. A class from TVI. Thru thin clouds we were able to see the Moon and Mars occasionally. Carl Frisch kept the viewers entertained with his scope with a camera attached to a lap top. They were impressed by that.

Nov 14: At sundown there were a few white clouds and one large black cloud out west. By 6:00 the large black cloud covered the entire sky. We closed shop shortly there after. Docents: Becky, Carl, Brock & Jay.

Ray Collins writes:
The Explor is, located just across the street from the Museum of Natural History, needs telescopes equipped for solar viewing as part of their grand opening on Saturday, December 13th. They are hoping for a minimum of four solar scopes. Contact Dee Friesen {friesend@aol.com} Note that the end of solar viewing will be early enough to allow plenty of time for all to get ready to attend the Solstice Banquet that same evening.

Editor’s Note

Please note that the deadline for the February 2004 issue of the Sidereal Times will be Friday, January 2nd, as the finished manuscript must be at the printers before Monday, January 5th, so that you will receive it by e-mail that day or by s-mail mail the following Saturday. My e-mail address is editor@taas.org.

TAAS Reports & Notices

Donations to TAAS

TAAS General: Mike Pendley
GNTO: John Sochinski
Education: John Sochinski, South Mountain Elementary School
Dark Sky: Judy Stewart Vidal, Esteban Muldavin, John Sochinski

Membership Services

for:
• Membership Inquiries
• Events Information
• Volunteer Opportunities

Contact Judy Stanley at membership@taas.org

for:
• Membership Dues
• Magazine Subscriptions
• Address/e-mail changes

Contact Shannon Mann at treasurer@taas.org

P.O. Box 50581 Albuquerque, NM

Welcome to New TAAS Members

Rudy C. Pena
Becky & Shane Ramotowski
Jeremy Becker
Pamela Hsu
Richard J. Reif
Kristin Rauch

As of January 1st 2004, TAAS member Sky & Telescope subscriptions will be $32.95. That’s up 3 dollars from our previous rate. I have made the changes to our membership forms to help in the transition. As of now, TAAS member Astronomy subscriptions are still $29.00.

Shannon Mann

SHANNON MANN

Definition of the Month

Reflection nebula - a part of the interstellar medium that reflects the light of nearby stars. Reflection nebulae are associated with stars that are not hot enough to ionize the gas.

The Official Newsletter of The Albuquerque Astronomical Society
Philosophers have long sought to “see a world in a grain of sand,” as William Blake famously put it. Now scientists are attempting to see the solar system in a grain of dust-comet dust, that is.

If successful, NASA’s Stardust probe will be the first ever to carry matter from a comet back to Earth for examination by scientists. It would also be the first time that any material has been deliberately returned to Earth from beyond the orbit of the Moon.

And one wouldn’t merely wax poetic to say that in those tiny grains of comet dust, one could find clues to the origin of our world and perhaps to the beginning of life itself.

Comets are like frozen time capsules from the time when our solar system formed. Drifting in the cold outer solar system for billions of years, “dirty snowballs” have undergone little change relative to the more dynamic planets. Looking at comets is a bit like studying the bowl of leftover batter to understand how a wedding cake came to be.

Indeed, evidence suggests that comets may have played a role in the emergence of life on our planet. The steady bombardment of the young Earth by icy comets over millions of years could have brought the water that made our brown planet blue. And comets contain complex carbon compounds that might be the building blocks for life.

Launched in 1999, Stardust will rendezvous with comet Wild 2 (pronounced “Vilt” after its Swiss discoverer) on January 2, 2004. As it passes through the cloud of gas and dust escaping from the comet, Stardust will use a material called aerogel to capture grains from the comet as they zip by at 13,000 mph. Aerogel is a foam-like solid so tenuous that it’s hardly even there; 99 percent of its volume is just air. The ethereal lightness of aerogel minimizes damage to the grains as they’re caught.

Wild 2 orbited the sun beyond Jupiter until 1974, when it was nudged by Jupiter’s gravity into a Sun-approaching orbit-within reach of probes from Earth. Since then the comet has passed by the Sun only five times, so its ice and dust ought to be relatively unaltered by solar radiation. Some of this pristine “stuff” will be onboard Stardust when it returns to Earth in 2006, little dusty clues to life’s big mysteries.

To learn more about Stardust, see the mission website at stardust.jpl.nasa.gov. Kids can play a fun trivia game about comets at spaceplace.nasa.gov/stardust.

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 cont

(see Figure 1) with minimal value in the non-mirror elements. An 8-inch Dobsonian costs around $400. If you are willing to spend more, go for a 10-inch (about $600). It takes at least an 8-inch to see much in the way of faint fuzzies.

The Finder - This one is much easier. Historically, a finder is a small scope attached to your main scope - I had one of these when I started out (my second mistake). It lets you see more of the sky at lower power and, I find them largely useless. Instead, most folks use a reflex sight, usually a Telrad (Figure 2). With a reflex sight, you look through an angled piece of glass and see a bull's-eye projected on the sky. You align the telescope by putting the center of the bull's-eye on the spot in the sky that you want to look at. They are relatively inexpensive (about $40), amazingly effective, and easy to use.

The Eyepieces - Some dedicated amateur astronomers spend up to $400 on a single eyepiece. For a beginner, such an outlay is not necessary. Two or three simple Plossl eyepieces will suffice. These run about $70 each. I strongly recommend getting a wide field eyepiece. This is just so you can get more of the sky in your telescope at one time. It makes it much easier to find things. About a 26-mm Plossl will give you the widest possible field in a 1-1/4 inch eyepiece. If you can go for a 2-inch eyepiece (and a 2-inch focuser on your scope), you get that much more sky in the view for about twice the price. Go for a 40mm-55mm Plossl or Konig. The big thing to do is to avoid short focal length (and consequently high magnification) eyepieces. With my own telescope, I spend at least 90 percent of my time at magnifications under 100X. For a 10-inch f/4.5 telescope (a typical Dobsonian) this means eyepieces no shorter than 12 mm. High magnification tends to give big but dim and fuzzy images.

The Charts - For deep sky astronomy, the charts are sort of easy because everything stays put, unlike the planets. There are any number of commercial charts available, Wil Tirion's Sky Atlas 2000, Uranometria 2000, etc., along with a host of charts in computer software form (The Sky, Guide, Starry Night) with prices ranging from $50 to over $200. When I started out, I dutifully bought one of the chart books (another mistake) and have almost never used it. For the beginner, a detailed book of charts is not needed and can be downright confusing. When starting out, a much simpler set showing maybe a couple hundred of the most popular objects is easily sufficient. There are charts like this commercially available. In addition, you can download free charts from the Internet, I program and print my own star charts and we'll gladly make those available to anyone. A simple set of charts with a few hundred objects, will keep you busy for years. Figure 3 shows one of my charts of the Big Dipper region. As you can see, there's plenty of stuff out there to look for.

So far, you've run up a tab of $700 or more to "get started". Obviously, that's a little steep (OK, a lot steep) especially if you are not even sure that astronomy is for you. There is a much cheaper way to do all this. TAAS has a very good loaner telescope program where members can check out a telescope, eyepieces, and Telrad finder at no cost. The loan period is for one month or possibly longer if no one else is requesting the equipment. Telescopes ranging from 5-inch to 13-inch are available. If you are a TAAS member and this appeals to you, contact me (yeah, that's right, I'm the telescope loan coordinator and this has been an unpaid commercial announcement) at telescope_loans@taas.org or call me at home at 294-4601. Remember, this program is available to TAAS members only. Considering the potential value, the loaner telescope program is reason enough to join TAAS.

Once you have the hardware together, what next. As it turns out, all this stuff is not very useful and can be extremely frustrating without some advice and instruction on how to use it. Next time, I will give some advice and how to make the most out of your telescope.
Minutes of the Board
November 6, 2003

Present: Ray Collins; Elizabeth Burki; Pete Eschman; Shannon Mann; Becky Purvis; Barry Spletzer; Excused: Dale Murray, Judy Stanley. Observers: Sammy Lockwood; Gordon Pegue; Barry Gordon; Heather Mann; Dave Brown; Larry Cash

I. Corrections to Last Month’s Minutes: none

II. Treasurer’s Report:
   a. Shannon presented a Board Summary report to be submitted along with the minutes of the meeting.
   b. With printed newsletter costs decreasing and more members requesting electronic newsletters a definite savings has been realized
   c. Dormant scouting account will be moved into the Education Fund.

III. Correspondence: None

IV. Retrospect:
   a. October general meeting: Many scopes were on display. Commentaries was offered by Gordon Pegue and Becky Purvis.
   b. Fall picnic and training: 30 people participated. Two telescopes were unveiled.
   c. Larry Cash completed his “TAAS 200” objects challenge. These challenge was devised by TAAS members and is composed of the most “interesting” objects in the sky.
   d. Rio Grande Nature Center: Sky was somewhat clouded. Guests from Tampa, Florida arrived late and were tired and most were very cold in our cool night air.
   e. GNTO: blown out due to high winds.
   f. Las Placitas: Six members showed up with telescopes. Started drizzling then cleared slightly. Only 25 visitors came, probably due to rainy weather.

V. Prospect:
   a. Lunar Eclipse event at Lodestar will be combined with a general meeting with Barry Spletzer reprising his “How did the moon get in my telescope” lecture which was cut short earlier due to computer difficulties
   b. Suggestion made that a membership table to set up to recruit new members at this open event. Heather Mann volunteered to man (pun intended) the table
   c. Los Griegos School Party: TAAS and The Atomic Museum will participate with demonstrations and telescopes. Tom Graham, the principal of Los Griegos, is a TAAS member and is anxious to promote the event.
   d. GNTO 11/15/03 will be hosted by Gordon Pegue
   e. Winter Solstice party will be held at the Holiday Inn on 12/13/03.

VI. Committee Reports:
   a. Membership: no report.
   b. GNTO meeting: Maintenance needs were addressed.
   c. A second new battery was purchased and installed
   d. Good progress on dome decking
   e. Still evaluating wireless Internet connection. This might require negotiations with UNM. UNM has very stringent requirements for joining their network, which may pose difficulties for TAAS.
   f. Grants: “Dollars for Volts”. Barry Spletzer will provide a list of possible contacts. Barry also suggested replacing the storage batteries with a generator. Pete raised issue of potential theft of such a valuable and visible piece of equipment.
   g. Loaner scopes: News that 13” loaner scope is going to be returned by the people who borrowed it and then moved out of state. A TELRAD has been purchased.
   h. Educational outreach: Committee has not yet met but may in December. Two parties are scheduled for January. A Girl Scout troop is working with Sammy Lockwood on an astronomy merit badge. Sammy has suggested that we sponsor three troops in the form of small donations. Some of the girls come from families so poor that they cannot afford their badge sashes. Motion was approved to donate $300.00. Gordon Pegue suggested that when the girls earn their badges that we present them with their badge at a general meeting.

VII. Old Business:
   a. We are still waiting to hear from Best Buy and Sandia Labs to respond to the grants written by Barry Spletzer.
   b. Barry Spletzer has several returned loaner scopes, with their new eyepieces, ready to share with our members. The Board approved the purchase of a TELRAD for the loaner program.

VIII. New Business:
   a. Sammy Lockwood voiced his desire to “retire” from the education coordination committee after 2 years of service. At this time there is no successor. We will look to develop an education committee rather than assign this increasingly complex effort to one person. We will open this up to the membership at the next meeting. Barry Spletzer volunteered to serve on the education committee
   b. Astronomy Day: suggestion made that we start now to decide whether or not to have our own special day or have a joint day with Lodestar
   c. Neil Goldberg has emailed copies of the preliminary calendar for 2004. Cheers for Neil and his efforts to complete this detailed task!
   d. Ray Collins will take on the task of developing a Nominating Committee for the presentation of Board candidates in 2004. Gordon Pegue has volunteered to be a member of the committee.

Meeting adjourned at 8:45 P.M.
You cannot see galaxy M104 from any major city. Come to our shop far away from big city lights, under dark country skies, and we can take you there. It will be the most exciting journey you have ever taken. You will be looking at a giant galaxy 10 times the size of our own, and at a staggering distance of 46 million light years. It is for experiences like these that we have kept our shop in the country. Aren’t you glad we did!

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

• Move up to Tele Vue quality: Like-new 22mm Panoptic eyepiece with dual (1.25" and 2") barrel. MSRP $375 - street price $333 - asking $200. E-mail BarryGordon@CompuServe.com or else call 867-6424.

• Free (yes, really free) case: Heavy-duty Doskocil watertight case - approximately 16" x 19" by 9" deep. E-mail BarryGordon@CompuServe.com or else call 867-6424.

Free Telescope Offer

What’s that? Did you say Free? That’s right FREE! Any TAAS member can use this coupon to borrow a TAAS telescope.
Contact Barry Spletzer at telescope_loans@taas.org or 294-4601 and receive a loaner telescope absolutely free. You can choose from scopes with apertures ranging from 6” to 13”.

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.

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