

SDAA

San Diego Astronomy Association



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A Non-Profit Educational Association
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SDAA Business Meeting

Will be held at:

SKF Condition Monitoring
4141 Ruffin Road
San Diego, CA 92123-1841
April 9th at 7:00 pm

Messier Marathon 2002

Due to weather problems, which included 30-40 MPH winds and precipitation, the Messier Marathon for 2002 was cancelled. If you are still interested in attempting the Marathon this year, the weekend of April 13-14, 2002 will be your next opportunity. Up to 108 Messier objects will be visible that night. Binocular and Sweep sheets will be available at the site that night if anyone needs them. Good luck!

CONTENTS

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| | |
|-------------------------------|----|
| Focusing for Astrophotography | 1 |
| Messier Marathon 2002 | 1 |
| Averted Vision | 2 |
| Unconventional Imaging | 2 |
| Eyepiece Shootout 1 | 3 |
| SkyWatch | 5 |
| Hangin' with the Dob Man | 6 |
| Science Fair Winners | 6 |
| Camp with the Stars | 8 |
| Future Star Parties | 8 |
| Contact Information | 10 |
| Events Calendar | 11 |

News and Notes

April 2002

Focusing for Astrophotography by Jerry Lodriguss

Editor's Note: This is the first of a series of articles written by Jerry Lodriguss that will be reprinted in the newsletter with his permission. You can see more of Jerry's work at www.astropix.com.

Introduction

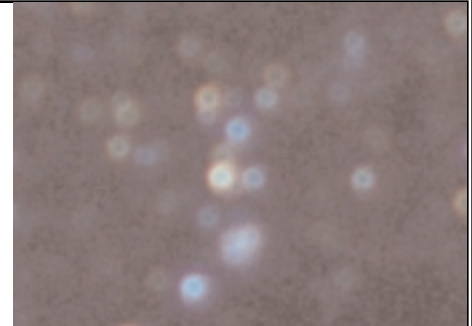
One of the most critical things that needs to be mastered in successful astrophotography is focusing the camera. Unfortunately, it is also one of the most difficult.

Critically focusing a camera on a telescope usually turns out to be surprisingly hard for most amateurs when they initially get into astrophotography.

The excitement of the first success of recording anything on film gives way to the slowly dawning understanding that the scope was not quite focused correctly.

After several attempts that usually result in poorly focused pictures or worse, it comes as a disappointing realization that the tremendous amount of time and effort invested in an astrophotograph can be wasted before the shutter is even opened if the camera is not focused properly, and that examining the focus on the groundglass of the camera with the unaided eye is just not accurate enough for consistently repeatable success in deep-sky work.

This comes as a surprise because they have always achieved reasonable success with this method when focusing their daytime terrestrial photos. But, these are taken with high shutter speeds and high focal ratios under bright lighting conditions.



OOF! An "Out Of Focus" Image

What they don't realize is during photography with a normal lens, they are usually focusing with the aperture diaphragm wide open and not at the shooting aperture. This gives a bright, relatively easy image to focus with. Then, as they press the shutter, the mirror flips up and the camera automatically stops down to the shooting aperture just before the photo is actually taken.

The extra depth of field and depth of focus that results from the actual shooting aperture usually hides any small errors in the focus. If they had to focus at the actual shooting aperture, say f/8, they would find the viewfinder dark and difficult to focus. Just try this experiment sometimes: Focus a normal daytime shot in the usual manner, and then stop the camera down to f/8 and use the depth of field preview button, and try to focus. You will find it much more difficult and uncertain.

The subject matter in normal daytime photography also helps hide any small focusing errors because most scenes contain objects at different distances, and something somewhere in the scene will usually be in focus, whereas astrophotos contain stars that are supposed to be pinpoints when in focus, a condition that is easily detected on the developed film.

(continued on page 4)

Why Averted Vision Works by Bret Akers

When looking at faint galaxies, nebulae, and clusters, astronomers often employ an observing technique called "averted vision," the technique of looking slightly to the side of objects, to better see them. But why does this work?

When you are looking through your favorite telescope's eyepiece, the gathered light is focused on an array of approximately 125 million light receptors in the retina of your eye. The light receptors are nerve cells known as rods and cones.

Rods, which far outnumber cones, are responsible for low-light vision, but are non-functional in bright light. Cones do not function well in dim light, but are necessary to see fine detail and color.

The number of rods and cones are greatly varied over the retina's surface. In the very center of the retina, where we see fine-detail the best, there are only cones. This rod-free area is known as the fovea and is roughly 0.5 mm in diameter. Cones are present throughout the retina, but are most densely packed in the fovea.

So what does this mean when we're looking through a telescope? Since the center of our field of vision is made up of only cones, we can see detail well, but forget about seeing anything with a very low surface brightness. However, if we look off to the side of an object and keep it away from the center of our field of vision, the rods in our retina are given a chance and can detect the dimmer light source. In general, this is why averted vision works. Unfortunately, it gets a little more complicated

Not only are the rods in our retinas less adept at picking up detail, they are further disadvantaged by not being wired as well as the cones in the fovea. Remember that each eye has about 125 million nerve cells to detect incoming light. There are, however, only a million or so optic nerve fibers that transmit this data to the brain. In the fovea, there is a 1:1 ratio of cones to

optic nerve fibers to maximize our ability to see detail and color in bright light. Off to the side, where the rods are located, there is up to a 125:1 ratio of receptors to optic nerve fibers. Our brain is forced to do an extensive amount of interpolation on the light from dim objects. However, there's still hope. The 125:1 ratio isn't consistent across the retina. There are spots with higher concentrations of optic nerve fibers to rods that lie somewhere between 8 and 16 degrees from the fovea on the ear side of your retina. This means if you are a right-eyed observer, you should avert your gaze off to the right side of the object. If you are a left-eye observer, you should avert your gaze to the left. With practice, you may find the sweet spot for your eye that will yield the greatest detail.

Dark adaptation also adds a slight complication. Once the dark adaptation chemical, rhodopsin, starts flowing to your retina's rods they will become hyperpolarized and start to spontaneously fire adding "static" to your view. The dark adaptation chemical is necessary to pick up very dim light sources and the static is simply the by-product.

So what do you do about all of this? Practice, practice, practice. Spend as much time at the eyepiece as you can and look for the faint fuzzies that you don't think you should be able to see with your scope! Also, tap the side of the scope if you think you might be seeing something. The rods in your eye detect motion very well.

Unconventional Imaging Changing Our Views by Lloyd Duhon

Unconventional imaging, the use of non-traditional or modified digital imaging systems for photographing astronomical targets, is quickly becoming a productive means of recording your observations.

Web cameras are inexpensive sources of CCD chips, and with only minor modifications, can be pressed into service as planetary and lunar imaging tools. Removing any lens assembly which comes with the camera is the first step. This, in

conjunction with a simple project box from a hobby store, a piece of 1.25" outer diameter pipe (available in the sink-plumbing area of your nearby hardware store), epoxy or superglue, and a Dremel or drill for making holes in the project box is all that is required to make a basic imaging system.

For example, I recently took a QuickCam VC (\$14.95 on Ebay) which contains a USB-based, Sharp CCD chip and removed it from its round "eyeball" casing by simply placing a small screw driver under the seam and prying the sides apart. After this, the lens removal was as simple as unscrewing it from its C-mount adapter. To keep things simple I left the C-Mount in place and drilled a small hole in my project box that was only large enough for the C-Mount to just squeeze through. Next, I drilled a small opening on one side to allow the USB cable to exit the box, and then trimmed the plastic on one side of the USB cable so it would fit snugly. I cut an appropriate length of the 1.25" OD pipe, and used Plastic-Fusion Epoxy to attach it centered on the opening for the CCD. The results are included in a picture here.



Be careful when selecting your web cam since many of the models include a CMOS sensor. CMOS is a different technology and in its current version is less light sensitive than CCD. CMOS (Complementary Metal Oxide Semiconductor) does have advantages over CCD chips which include lower power usage, integration of additional circuitry on-chip, and lower system cost. However, these advantages don't add up to anything useful on an Astronomical platform.

(continued on page 7)

Eyepiece Shootout 1 24.5 mm - 25 mm widefield by Bret Akers

Editor's Note: This is the first in what will hopefully be a long series of articles comparing eyepieces of similar focal lengths. Thirteen comparisons are planned for wide-field eyepieces and we're also planning another series of comparisons for eyepieces under \$100 dollars. For this review, two scopes were used: a 4-inch f/10 achromatic refractor and a 16-inch f/4.5 Newtonian reflector.

The competitors:

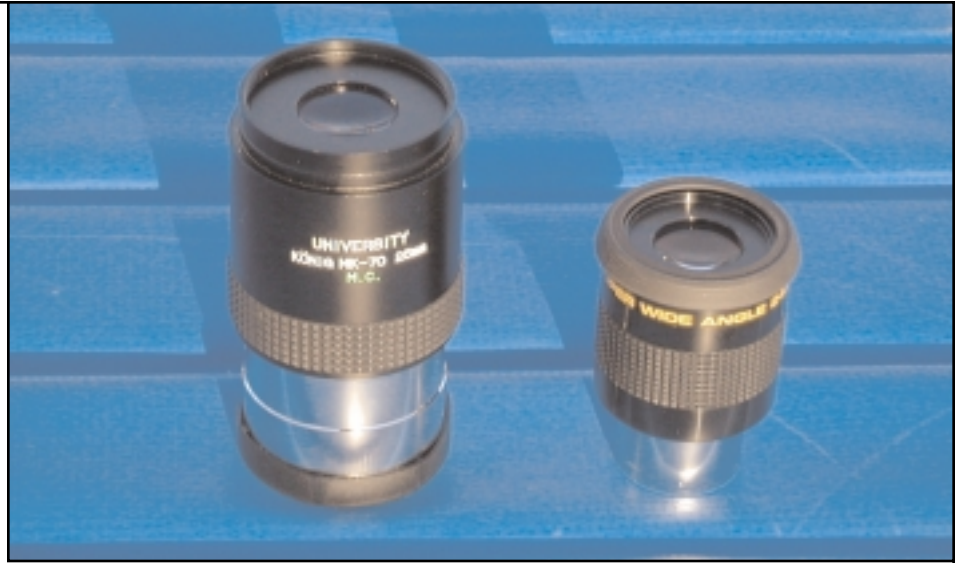
The Meade 24.5 mm Super Wide Angle sits right in the middle of Meade SWA line of eyepieces. It has 6 lens elements and a 1.25" barrel. The apparent field of view is advertised at 67 degrees. The street price for this eyepiece hovers around \$179.95.

The University Optics 25 mm Konig MK-70 is one of two eyepieces that University Optics markets as a 2-inch, 7-element eyepiece with an apparent field of view of 70 degrees. The design is interesting since it is threaded for 2-inch filters on both the barrel and eyelens. The price from University Optics is \$179.95

On-axis sharpness: On-axis sharpness was very close, but the University Optics 25 mm MK-70 seemed to consistently be a bit sharper at the center of the field. It was easier to get pinpoint stars in the center of the field in both the f/10 achromat and in the f/4.5 reflector. **Edge: 25 mm MK-70**

Off-axis sharpness: The results here were mixed. Neither of these eyepieces excel at edge sharpness. Sometimes the Meade 24.5 mm SWA looked better and at other times the University Optics 25 mm MK-70 looked better. However, it seemed that the Meade 24.5 mm SWA looked better more often. **Edge: 24.5 mm SWA**

Contrast: Looking at some of the finer details of M42 in the f/10 achromat, there was no apparent difference in the eyepieces. However, looking at M81 in the f/4.5 reflector revealed a slight difference. It was easier to see some of the galaxy's



dust line detail in the Meade 24.5 mm SWA. **Edge: 24.5 mm SWA**

Light transmission: The stars in M44 were used for this test and the results were fairly consistent. It was consistently a little easier to see some of the fainter stars in the University Optics 25 mm MK-70. However, it was close. **Edge: 25 mm MK-70**

Field flatness: This was another close test, but the Meade 24.5 mm SWA seemed to have a flatter field with less distortion. **Edge: 24.5 mm SWA**

Eye relief and comfort: The Meade 24.5 mm SWA was noticeably more comfortable to use. The eye relief and head placement was much better and it was easier to take in the full field of view. The rubber grip is well placed and also helped when holding the eyepiece in 40 degree weather. The University Optics 25 mm MK-70 really needs an eyecup. To take in the full field of view you need to rest the bridge of your nose on the corner of the eyelens threads. I didn't find it very comfortable for extended viewing periods. It was interesting to note that the eyepieces' apparent fields of view seemed to be very different. More than one observer noticed this. The Meade 24.5 mm SWA is much narrower than the University Optics 25 mm MK-70. The difference seemed to be much more than the advertised difference of three degrees. Note that we didn't measure the AFOV of either eyepiece. This was simply the impression left from the comparison. **Edge: 24.5 mm SWA**

Chromatic Aberration: The chromatic aberration of these two eyepieces was determined by looking at the magnitude of the secondary spectrum shown in the f/10 achromat when it was pointed at Jupiter. The results were pretty close, but there was consistently more false color in the Meade 24.5 mm SWA than in the University Optics 25 mm MK-70. **Edge: 25 mm MK-70**

Coatings: The multicoatings looked the same on the two eyepieces. They were both deep purple in color and appeared to be pretty smooth. **Edge: Draw**

Conclusions: I found this to be a fascinating comparison because we had two comparably priced, wide-field eyepieces at a focal length where there's not a lot of action. The results were close. The University Optics 25 mm MK-70 performed better in the categories of on-axis sharpness, light transmission, and chromatic aberration. However, the **Meade 24.5 mm SWA** was the winner. It seemed to have better off-axis sharpness, contrast, and field flatness. It was also much more comfortable to use and enjoys a sizable weight and bulk advantage. When the testers were asked which eyepiece they'd rather have, the Meade 24.5 mm SWA was the unanimous choice.

Note: The opinions expressed in this review are solely those of the author and do not constitute an endorsement by the San Diego Astronomy Association.

Focusing Considerations

- Focusing a camera by the unaided eye is difficult and inaccurate. There are many better ways to focus.
- The actual infinity focus on some camera lenses may not match the infinity mark on the focusing ring. The infinity focus should be tested.
- Some scope objectives, particularly SCTs, can move, causing difficulty focusing.
- Camera mirrors, prisms and focusing screens can be out of collimation
- giving a visual indication of focus that is not accurate.
- The focal plane in many scopes is not flat.
- The film is not held flat in some cameras.
- For knife-edge and Ronchi-screen focusing, it is important to note that the film's emulsion may not be located on the inner rails of the camera.
- Focus can drift due to temperature change.

mined based on this figure. For instance, my 1040mm focal length telescope has a magnification of about 21x.

Afocal

This setup consists of a telescope focused at infinity combined with a camera with the lens on it also focused on infinity.

The camera is held up to the eyepiece and the photograph is made. Care must be taken to hold the camera so that the film plane is perpendicular to the optical axis and it does not move during the exposure. The camera should be at the focal length of the camera lens away from the eyepiece so that the exit pupil of the scope is located at the iris diaphragm of the lens.



For long focal length eyepieces, it may be a problem making sure the eyepiece is focused on infinity because of the eye's accommodation. To solve this problem, a finder scope or binocular can be focused on infinity first, and then held up to the telescope's eyepiece. The telescope's eyepiece is then focused through this auxiliary instrument.

The equivalent focal length of the system is the telescope's magnification multiplied by the focal length of the camera lens. If the camera lens is the same focal length as the eyepiece, the magnification is 1x.

The focal ratio of an afocal system is determined in the usual manner, the diameter of the objective divided by the focal length

Positive Projection

Here an eyepiece is used in the telescope but no lens is used on the camera. The eyepiece projects the image directly onto the film.

Special adapters are sold for this setup ensuring the film is perpendicular to the

(Focusing—continued from page 1)

It is an entirely different ball game with deep-sky astrophotography. The subject matter is all at one distance, infinity. If the camera and telescope are not focused, the entire frame is out of focus.

Normal daytime camera lenses usually range from 24mm to 200mm and apertures from f/1.4 to f/5.6. Most telescopes range from f/5.6 to f/11. If you shoot with a 50mm f/2 lens stopped down to f/8, you focus at f/2, which is much brighter than f/8.

Worse, many cameras have focusing screens with split-image rangefinder or micro-prism focusing aids built into the screen that completely black out at the slow focal ratios encountered in most telescopes. The outer portion of the focusing screen in many cameras is dim to start with making focusing a telescope even harder.

On refractors and Schmidt-Cassegrain telescopes, the camera's viewfinder is pointing downwards to the ground when the scope is pointing upwards to the sky to take a photo, and just looking through the viewfinder can be a physical challenge even for the most limber astrophotographer. Focusing can often become an exercise in physical stamina with the photographer fighting a losing battle to an uncomfortable viewing position.

While it is possible for an astrophotographer with excellent eyesight

to sometimes achieve focus with a camera on a telescope with his unaided eye, much more critical and repeatable success can be obtained with a variety of other methods and devices.

System Setups

In all of these systems, focus can be accomplished with the methods outlined on the following pages.

Direct Objective

In this system, light is focused directly on the film from the telescope objective or camera lens. This is usually called "prime focus".



In prime focus photography, the focal length of the telescope simply becomes the equivalent focal length of a camera lens. For instance my 130mm aperture refractor is f/8 and has a focal length of 1040mm, so the telescope can be thought of as a 1040mm f/8 camera lens.

A 50mm camera lens is usually considered to be a magnification of 1x with a 35mm camera, so the magnification of any other focal length telescope or lens can be deter-



San Diego Astronomy Association



optical axis. Usually an orthoscopic eyepiece is a good choice for positive projection photography.

The amount of magnification is determined by the spacing of the eyepiece to the film.

Negative Projection

In this system a negative lens, usually a telescopic barlow or camera teleconverter, is used in between the telescope and film. No eyepiece or camera lens is used.

Magnification is again determined by the spacing of the barlow and the film.

(Look for a continuation of this article in the May issue.)

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SkyWatch for April, 2002

John Mood



[Times PDT] [* = Easy] [** = Moderate] [*** = Difficult]

Thurs., 28 Mar. ---- FULL MOON, 10:25 a.m. [PST].

Mon., 1 Apr. ---- No fooling!!

Sat., 6 April ---- STAR PARTY @ Tierra del Sol; it'll be a short 'un because.....

Sun., 7 April ---- Lose an hour as clocks are moved forward @ 2:00 a.m. for PDT.

Fri., 12 April ---- NEW MOON, 12:21 p.m.

Sat., 13 April ---- STAR PARTY @ Tierra del Sol.

Fri., 26 April ---- FULL MOON, 8:00 p.m.

Sat., 4 May ---- STAR PARTY @ Tierra del Sol.

Sat., 11 May ---- STAR PARTY @ Tierra del Sol.

Sun., 12 May ---- NEW MOON, 3:46 a.m.

EVENING PLANETS:

THIS IS IT, FOLKS!!!! The beginning of the most spectacular gathering of all 5 naked eye planets in 16 years! Not since the summer of '86, when we could get all 5 + Halley has this happened.

At the beginning of the month JUPITER [*] is high overhead in Gemini & SATURN [*] is below it in Taurus, still near the Hyades. Next is MARS [*], dim but still there, moving from Aries to Taurus. VENUS [*] does the same, going from Aries into Taurus, & it's the brightest of the four. In the latter part of the month, MERCURY [*½] begins its rapid race from Pisces through Aries to Taurus.

From this description, you can intuit what's happening. The planets are doing a seductive dance. By the end of the month, SATURN & MARS will be only 3° apart & MARS & VENUS will be only 5° apart, meaning the 3 planets will be separated by only 8°!

Additionally, MARS passes fairly close to ALDEBARAN later in the month, so one can compare their similar colors.

There's more. The MOON will snuggle up to MARS & the PLEIADES on the 15th (use binocs), & will pass close to VENUS on the 25th. Finally, the MOON will be only 1½° from MERCURY on the 29th & 30th, providing a guide to that elusive planet.

Two observations:

- 1.) This is not a one-night deal. The delight is in observing the planets MOVE (which is what the word "planet" means!). So step outside every 2 or 3 nights, all month long, & observe those planetary motions, in relation to each other & to the several near-by bright stars.
- 2.) You astrophotographers can get some fascinating & rare shots of 2 or even 3 planets at once, especially later in the month.

MORNING PLANETS:

BONUS!!!!

If you get up an hour or 2 before dawn, you can also add NEPTUNE in Capricornus [**] (w/ a telescope) & then URANUS in Aquarius [*½] (w/ binocs), & thereby will have seen all 7 major planets in one night. You younger observers with especially good eyes might even try for Uranus naked eye & bag 6 planets that way.

& THIS IS ONLY THE BEGINNING; WAIT 'TIL NEXT MONTH.....

(Preview: on 6 May, Venus, Mars & Saturn in a 2.8° triangle, & on 10 May, Venus & Mars only 0.3° apart.)

TIERRA DEL SOL

LAT = 32° 36' 46" N (± 0.1"), LONG = 116° 19' 55" W (± 0.1"), ELEV = 3710' (± 5'), at the bathroom, as determined from USGS 7.5 min 1/24000 map.

Send comments & questions to me by phone (619/225-9639), USPS (4538 Long Branch Av., San Diego, CA 92107) or my newe-mail address

(1happyalien@cox.net).

¡HAPPY VIEWING!

Hangin' with the Dob Man by Jim Traweek

The arrangements for John Dobson to lecture at our meeting were made through Donna Smith of the LA Sidewalk Astronomers, who does all of John's scheduling. She is very nice, friendly, and helpful.

I was very stressed out about a few aspects of John's visit. Stress Factor-1) Picking him up and returning him to Hollywood (who doesn't hate driving in LA). Donna suggested we just put him on a train. COOL! She mentioned that he was upset that they haven't been getting him out on the streets with a telescope. I told her to send him down a day early. I was pretty sure we had a school star party planned. If not, I'd take him and a scope to the park, the beach, or someplace.

SF-2) When John came down last year, he stayed with Dennis Ritz in La Jolla. How could I bring this 86 year old Monk to Nasty City? To the house of a smoker and more cats than I'll ever admit to? Soooo, I arranged to have him stay with Roy Ang. COOL! (many thanks Roy).

I picked John up at the Santa Fe Depot at 1:30pm Thursday. I asked if he wanted to visit the San Diego Vedante or if there was somewhere else he wanted to go. He said, "No, I'm not a tourist."

SF-3) How do I entertain an 86 year old Monk? I took him home and told him, "I have a reflector with some kind of pinched mirror problem." I asked if he could take a look at it. His face lit up! COOL! I have three newtonians and a classic cassegrain (didn't even mention my piece of schmidt). I also have two of the club's loaners at home. He disassembled, cleaned the mirrors, checked the cells, reassembled, and collimated every one of them! When finished, he checked the astigmatism on the original windows of my old house and collimated my bathroom mirror! The whole time we talked mirrors, telescopes, and equipment. I learned a lot of stuff from the greatest amateur telescope maker in the world.

Off to the star party at Johnson Elementary



School. I brought a 10" dob for John (of course), and binos for me. Here was the man in his environment! This is what he does! This is what he lives for! He was wonderful with the children, parents, and teachers. A number of people noticed he seemed to know a bit more than the rest of us. At the end, I knew he had done a great job, when a "very cute" teacher gave him a big hug. I, of course, received a handshake.

When we got in the car to leave, he turned to me and asked, "So, do I have to stay somewhere else?" Jeeze, I felt so bad, like I was trying to dump him at a retirement home. I explained he was more than welcome to stay with me. I just thought the embedded smell of smoke and cats would offend him. He said, no, he didn't mind, and he was very comfortable being with me. COOL!

SF-4) I was sure he was a strict vegetarian. Turned out he was pretty flexible. COOL again! After stopping at Denny's, I confessed that I had been up since midnight, and was beat, (missed my afternoon nap). I had asked my boss to work me as early as possible, so I could get off early to be with John. It was now 10:00pm. Upon checking my fax, I realized I had to be at work at 11:00pm, (AYE CARUMBA!, this is why I don't do many star parties).

I returned home at 8:30am, a total "zombie". John fixed me breakfast. We then tore apart the rocker box he had used the night before, and modified it for a smoother ride. He could see I was pretty "spaced out" and told me a couple of times, "you should get some sleep." I came out of the restroom to find that he had disappeared. I found him stretched out in the sun on my front lawn. DAMN, he looked dead! A neighbor even came over to check on him. She thought some homeless guy died in my front yard! I was doing some paperwork when he finally came in, told me to "get some sleep" and went to his room. At last, I went out to the motor home for a nap. He told me later, he took a nap because that was the only way that I would. The rest of the afternoon he told me many stories of his experiences and travels. We also discussed astrophysics 'till my head was spinning.

While eating dinner before the program meeting, I asked him what he was going to speak about. He said, "Oh, I don't know." Can you imagine? It's said the most common fear people have is speaking in public. Well....he has done it a few times before! I tried to talk him into relating some of the stories he had shared with me. But no, he opted for the "cosmology" lecture. I got to tell you, he's a much different person when not lecturing. I can't quite describe it, he's



San Diego Astronomy Association

just more personable.

In the morning we arrived at the train station about a half hour early. He was telling me about two appearances he made on the Johnny Carson show. I noticed he had caught the ear of a woman sitting on the bench across from us, and she was leaning in to eavesdrop on the story.

On my way home, I was chuckling about the woman, when I stopped to reflect. I'm not one to be star struck (so to speak), but you know John Dobson IS history! He's easily the best known and most recognized astronomer since Carl Sagan. He basically invented public star parties. If he had a dime for every commercial dobsonian telescope ever sold, he'd be filthy rich. When it comes to astronomy, he has truly "been there, done that."

I felt a bit silly to have been so worried that my home and I weren't good enough for him. And perhaps, that my intellect wasn't enough to entertain him. He is not judgmental or materialistic. I think he truly liked me and enjoyed my company. As much of a talker as he is, he's also a good listener. He actually listened to and accepted some of my thoughts on telescopes, physics, and life.

He has devoted his life to meeting new people and sharing his knowledge and life's experiences. He is a good man. It was an honor to hang out with the "Dob man."

As I pulled in my driveway, my final thought made me laugh. Should our paths cross again, although he may recognize me, (cuz I'm so purdy), he probably won't remember my name.

Science Fair Winners by Bob Wetzel

The San Diego Astronomy Association is please to announce this years 48th Annual Greater San Diego Science and Engineering Fair winners. Two winners were selected from over 1200 projects in all fields of science.

Judges Doug Johnson, Scott Baker, and Bob Wetzel reviewed projects, talked to prospective candidates, and finalized on

two winners—one in the Senior Division and the other in the Junior Division. Each award contains: a one year subscription to either *Astronomy* or *Sky & Telescope*, a one year associate membership in the club, and a cash award of \$75.00.

This year's Senior Division winner is 10th grader from La Jolla HS, Harish Gautam Khandrika, whose project is titled "Evidence for decay of 44titanium to 44calcium in supernova remnant cassiopei A." The Junior Division winner is 7th grader from St. John's, Josephine Caitlin Payne, who did work on a project titled "Jupiter and its moons."

Both winners will be presented their awards at the next regular club meeting, tentatively scheduled for April 19th, 2002, at the RH Fleet Science center. The winners will share their projects with the membership and give a small talk about what they learned.

Congratulations to both winners and their families.

Keep the Site Clean!

To All,

Last Saturday (3-2-02) I brought TP, paper towels, coffee, cups, plates, hot chocolate and other sundry items to restock the site.

The warming room was left in quite a mess. There was a cutting board left out with remnants of food on it, numerous dirty plates and utensils. The tables were covered with mouse droppings and the several boxes had been chewed into. The trash can was full to the brim, the floor had food crumbs etc., etc., etc.

We cleaned up the warming room and took home two full bags of trash.

REMEMBER: It's everyone's duty to help maintain the site and mutual facilities. PLEASE CLEAN UP AFTER YOURSELVES. Don't leave trash! Please, take it with you when you leave!

Thank You,

Terry Stewart
SDAA Director/Site Maintenance
Chairperson

(Imaging—continued from page 2)

Several software packages are available to assist the budding imager. Freeware packages, like Vesta and K3CCDTools, include a wide variety of options and features to assist you in gathering your raw images. Collecting the images as an AVI movie seems to provide the best results. Center the object well in the CCD. Take your time; the chip is very small and results in a very limited field of view. After centering, work on focusing. This is where your mount comes into play the most. If your mount is shaky, you will have more difficulty focusing than if your mount is stable. Also, properly polar aligning your motorized mount will keep the object centered longer without incident. When your focus is complete and you're happy with the view on the screen, begin taking some movies. Take several, and take them for extended single movies, if the seeing is good.

Post-processing is an important next step. Again, freeware software steps up to challenge. AstroStack will sum several images from your AVI collection into a single frame with greater detail. K3CCDTools also offers some of this functionality. When you are done with your processing, post your images to the Internet so we can all see them.

Inexpensive CCD cameras are a great tool for beginning imagers, as they will allow you to gain insight to the limitations of imaging systems and mounts without investing a great deal of money. The classic rules apply very well in this situation. Always follow the basics. Get a stable mount platform, a wooden tripod or a pier work best, and make sure you spend time polar aligning the scope properly before you begin imaging. This will give you the best results with the greatest ease.

AstroStack:
<http://utopia.ision.nl/users/rjstek/english/software/>

K3CCDTools:
http://www.pk3.host.sk/Astro/software_download.htm

Vesta:
<http://www.ncare.co.uk/qc/download.htm>

QuickCam and Unconventional Imaging Astronomy Group:
<http://www.astrabio.demon.co.uk/QCUIAG/>



San Diego Astronomy Association

Camp With The Stars by Michael Dietz

This month we have 2 Camp With The Stars programs. On Friday, April 12th at 7 p.m., we will be at the Oak Oasis Open Space Preserve located at 12620 Wildcat Canyon Road.

Breakfast on Saturday morning will be provided for those who stay overnight. To reach Stelzer Park/Oak Oasis Open Space Preserve, take I-8 East to Hwy. 67 North. Exit at Mapleview Street and head East to Ashwood St. Turn left on Ashwood St. and head North. Ashwood St. turns into Wildcat Canyon Rd. Continue North on Wildcat Canyon Rd. You will pass Stelzer Park on the right near the bottom of the hill. Continue on Wildcat Canyon Road past the park entrance about 2.4 miles and up the hill. At the top of the hill on the left will be the entrance to the Oak Oasis Open Space Preserve (12620 Wildcat Canyon Road).

On Saturday, April 13th, we will be at Borrego Palm Canyon Campground. We will set up at the Visitors Center at noon on Saturday for solar viewing, and then at 7 p.m. for the evening viewing. If you are interested in attending call me at (619)562-2726 so I can be sure we can accommodate everyone.

To reach Borrego Palm Canyon campground, take I-8 East to Hwy. 67 North. Continue on Hwy. 67 North through Ramona to Hwy. 78. Take Hwy. 78 East to Santa Ysabel and turn left on Hwy. 79. Head North on Hwy. 79 for about 20 miles to Hwy. S-2. Turn right on Hwy. S-2 and head East for about 4 1/2 miles to S-22. Veer left on Hwy. S-22 (Montezuma Valley Road) and head East for 18 miles to Borrego Springs. At the outskirts of Borrego Springs, Montezuma Valley Road becomes Hoberg Road at the intersection with Palm Canyon Drive. Turn left at Palm Canyon Drive and go west about one mile (if you turn right you will go into the town of Borrego Springs). The first road on the right leads to the campground.

Future Star Parties by Big Dog

We have quite a variety of events scheduled this April. We will be very busy this month so we welcome any and all help. Even if you have never been to a star party in the past, consider bringing your scope and having some fun with us.

April 2nd, Tuesday

Silver Strand Elementary. Our First Star party will be at Silver Strand Elementary within the Silver Strand navy housing area. We are expecting somewhere in the neighborhood of 150 folks for this one. The school is located at 1350 Leyte Rd. off the Silver Strand highway.

April 3rd, Wednesday

Stars In The Park, Balboa Park. We will be at Balboa Park just west of the fountain. We generally set up around 7 p.m. or near sunset.

April 4th, Thursday

Mt Everest Academy. We will be in the Clairemont Mesa area for a 6:30 pm star party. The Star Party is located at 4350 Mt. Everest Blvd. From CA-163, take the Genesee Ave. West exit. Turn right onto Genesee Ave. Turn left onto Balboa Ave/CA-274 W. Turn right onto Mt. Everest Blvd. The indication is that dinner will be provided, so be sure to contact Rich Bentley so a count of who will be able to attend can be provided to the school

April 6th, Saturday

Sierra Club, Stars at the Site. Star parties have a choice! You may either enjoy the first Stars at the Site in Tierra Del Sol or Sierra Club Laguna Lodge in Laguna, CA. Apparently, we can be there and set up for solar viewing and also camp out. Contact Joe McGerald for more information on the Sierra Club event.

April 10th, Wednesday

On Wednesday, April 10 at 7:00 pm, we will be Mt. Vernon School in Lemon Grove. This star party was re-scheduled from March 13. To get to the school, take the Lemon Grove Ave exit from highway

94. Turn right at the "Y" intersection of Lemon Grove Way and Lemon Grove Avenue (south toward the city). Drive past Broadway and Palm St. to Mount Vernon St. (Some signs say 'Mount Vernon Ave.'). Turn left. There is some road construction in the area that may make seeing the Mt. Vernon turn tricky. The school is just beyond Washington St. on the left.

April 11th, Thursday

Lexington Elementary, El Cajon. We will be at a star party at Lexington Elementary that was re-scheduled from a March date that was cancelled due to weather. The school is located on 1st. Street between Washington and Main Street.

April 12th, Friday

Camp With The Stars, Oak Oasis Co. Open Preserve. We will be at a star party on Wildcat Canyon Road. It looks like we will be able to camp overnight. Contact Mike Dietz for more information.

April 13th, Saturday

Stars at the Site, Camp with the Stars. Again, on Saturday, April 13th, star parties have a choice! You may either enjoy the second Stars at the Site in Tierra Del Sol or return to Borrego Palm Canyon.

April 17th, Wednesday

Hilltop Middle School, Chula Vista. We will be at a 7:30 Star party at Hilltop Middle School. The school is located at Hilltop and J Streets.

April 19th, Friday

W.D. Hall School, El Cajon. We are scheduled to be at the WD Hall school from 7:30 pm - 2:30 am. The school is located at 1376 Pepper Dr. From Interstate 8 (heading east) take the CA-54/2ND Street exit. Turn left onto N. 2nd. Street. Turn right onto Pepper Drive.

For those who would like to help the club and volunteer for star parties, contact one of our Star Party Directors:

North Region Part Director: Bob Nanz
cathynanz@nctimes.net, (760) 747-0717

South Region Party Director: Rich Bentley



San Diego Astronomy Association

rbentley@ucsd.edu, (619) 231-8791

East Region Party Director: Joe McGerald
joemcg@home.com, (619) 840-8736 (cell).

They will be thrilled to put you on the list of regular volunteers contacted as some star parties are scheduled or canceled after the newsletter is published. And if they know you are interested, they can keep you updated. Also, many of you have email address changes and such. Please let us know what email address(es) you want to use to provide notices of future events.

If you are interested in scheduling a star party for a school or group you are affiliated with, please call any of the above contacts at least 6 to 8 weeks in advance to make sure you get the date you want.

Party On Stargazers!

Tierra Del Sol Star Party Report for March 9 By Bret Akers

When I arrived at Tierra del Sol at about 4:30 pm there was a high band of thin clouds. By sunset, most of the clouds had dissipated and set up some pretty good seeing and transparency. Most of the night the seeing rated about a 7 or 8 on the Pickering scale. In a 12" LX-200, the E and F stars in the Trapezium were easy and a few people thought they could see the seventh star! The public pads were about half full and the nighttime temperature stayed at or above 40 degrees. Some occasional light wind made it feel cold from time to time, but overall it was pretty mild for early March. High clouds rolled in at around 12:30 pm and the remainder of observers packed up.

Acknowledgments by Michael Dietz

The club would like to thank Roy Ang, Dean Belcher, Rich Bentley, Tim Boller, Carolyn Corless, Peter DeBaan, Mike Dietz, Stu Hall, Don Hamm, Gilbert Ikezaki, Shawn Kelly, Jim Lawler, Jose Magsaysay, Nick Marilao, Joe McGerald, Bob Nanz, Jennifer Pesqueira, Kent

Richardson, Mary Jo Rushing, Gregory Santos, Cindy and Terry Stewart, Perry Tuey, Bob Wetzel, and Bill Whalen for helping with the school star parties, Camp With The Stars, and Stars In The Park programs. Your efforts are greatly appreciated by the students, parents and teachers.

Past Program Meeting by John Restivo

The Program Meeting for March provided 85 members and guests the opportunity to enjoy a light hearted and warm evening with noted astronomer, John Dobson. Mr. Dobson was able to give the audience a humorous and thought provoking presentation on the theories of black holes and cosmology, as only he could provide. Whether you accepted or rejected his views, Mr. Dobson allowed us to think and ask 'why?'

Vendor Thanks for Banquet Donations by Brian V. Staples

The SDAA had a very successful Annual banquet at the Hanalei Hotel in Mission Valley. Attendees enjoyed a fine Italian buffet, the presentation by Terrance Dickinson, and some of the members walked away with fabulous prizes donated by the SDAA and some of the prominent vendors in the industry.

We would like to offer our sincerest thanks to the following vendors for their generous donations to our banquet raffle:

David Chandler Co.

- Small & Large Planispheres

Discovery Telescopes

- 8" DHQ Dobsonian Telescope

Reuben H. Fleet Science Center

- 2 Fleet Center Tickets

Kalmbach Publishing

- One-Year Subscription to Astronomy Magazine

Lumicon

- 1-1/4" Ultra Block Filter

Meade Corporation

- 14mm UWA Eyepiece

Oceanside Photo & Telescope

- 6mm Radian Eyepiece
- Meteorite Pendant

Orion Telescope Center

- Deluxe Medium Accessory Case
- DeepMap 600
- Star Target Planisphere

Scope City

- 2 \$25.00 Gifts Certificates
- Parks ALP 1-1/4" filter

Sky Publishing Corporation

- Starlight Nights
- Night View Poster

Software Bisque

- TheSKY Level III, Verison 5.0 Windows

These vendors contributed almost \$1800.00 in prizes, and we would like to urge you in considering these generous vendors when making your purchasing decisions. In addition to the above door prizes, the following prizes, donated by the club to its members, were also raffled off:

- 2 copies of Nightwatch
- Night Sky
- 2 Celestron Lens Pens
- Rigel QuikFinder
- Rigel Starlight
- The Messier Objects
- Cambridge Star Atlas
- Sky Atlas 2000 Deluxe
- Tarantula Nebula Poster
- Milky Way Panorama Poster
- Backyard Astronomer's Guide

Finally, the SDAA would like to thank Michael Dietz and the Star Party crew for their donation of ten Fleet Center Tickets. Such generosity from those who already give so much is overwhelming!

One last note...after years of Jim Doody walking off with mega eyepiece after mega eyepiece, the curse has finally been broken. This year's glass behemoth went to the Bakers. As the winning ticket was being draw, a hush fell over the crowd. When the number was called, and Jim didn't stand, we all knew years of despair turned to outlooks of hope!



San Diego Astronomy Association

Treasurer's Report by Jennifer Pesqueira

With the addition of the following new members we now have 567 SDAA members. We would like to welcome our new members, Leo Bleicher, Bruce & Nancy Hillman, Paul Laikind, and Ronald Rivers. May you enjoy clear dark skies.

March Meeting Minutes by Melinda Baker

President Jim Traweek called the meeting to order at 7:06, the minutes were heard and accepted.

Treasurer's Report

Currently the SDAA has \$9,995.66 in checking, \$8,323.18 in M Market, \$5,484.83 in CD#1 and \$5,155.46 in CD#2. Current member enrollment is 569 with a decrease in 10 members from last month.

Star Party Report

An average of fourteen star parties a month are planned, and members are desperately needed to volunteer for these events. To volunteer, see the newsletter or Yahoo group for information.

Educator's Report

Astronomy Day was originally scheduled

for April 20th, but has been postponed.

Vice President's Report

New sites for Program Meetings are being investigated, and the Reuben H. Fleet is secured for John Dobson.

Observatory Report

Everything is going well, the new eyepieces are working well, and filters are next on the wish list.

Private Pad Report

At present there are five pads remaining to be assigned, and there is a possible group concrete pouring coming in the near future. Ideas were proposed to hold aside a private pad for nightly rental.

Site Maintenance

Warming room and trash cans need attention from every member, bring your personal trash home with you!

Yahoo Group Report

179 members are currently enrolled and active in the Yahoo group. There is a chance that the site may go down briefly in the near future.

Newsletter Report

Consumer reviews of various objects to appear soon, and all articles are to be submitted by the 20th of each month. A

suggestion was made by club member Tom Frances to move the newsletter to email format.

Old Business

The banquet went great, a hearty thank you goes to Diana. Mention was also made of the recent passage of the lighting bill. It is unknown how this new bill will affect local viewing.

New Business

Astronomy day is upcoming, and fliers for children are being posted in the local area. A suggestion was made to have a petition out on Astronomy Day to veto the recent lighting bill. A note was made by Scott Baker of the very bright lights that appear on the horizon at Tierra Del Sol, and an investigation will be made to see if there is a way to dim them.

The meeting was adjourned at 9 o'clock.

Donation Thanks

We wish to thank William Baity for his cash donation to the club!

Clip and Save

2002 Board of Directors and Chairpersons

President, Observatory Director, Jim Traweek
email: President@sdaa.org619-477-7279

Vice President, John Restivo
email: VicePresident@sdaa.org858-268-3856

Treasurer (Membership), Jennifer Pesqueira
email: peskee2@elindio.net619-276-9568

Recording Secretary, Melinda Baker
email: aislinn@cts.com858-792-5581

Corresponding Secretary, Dennis Ritz
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Star Party Director, Michael Dietz619-562-2726

SDAA Email Group Moderator, Scott Baker
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North County Star Party Director, Bob Nanz
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South County Star Party Directors, Rich Bentely and Stewart Hall
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Director, Education, Bob Wetzel
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Director, Public Pads, Sean Houghton
email: Pads@sdaa.org619-885-0024

Newsletter Editors, Bret Akers and Lloyd Duhon
email: Newsletter@sdaa.org858-538-5309

TDS Site Director, Terry Stewart
email: t-c-b@juno.com619-295-2449



SDAA Calendar of Events

April 2002

| S | M | T | W | T | F | S |
|----|----|---------------------------------------------|---------------------------------------------------|------------------------------------------------|------------------------------------------------------------|-------------------------------------------------------------------------------------|
| | 1 | 2 Star Party at Silver Strand Elementary | 3 Stars in the Park 7 pm | 4 Star Party at Mt. Everest Academy 6:30 pm | 5 ☾ | 6 Star Party at Tierra Del Sol Star Party at Sierra Club Laguna Lodge |
| 7 | 8 | 9 SDAA Board Meeting 7 pm | 10 Star Party at Mt. Vernon School 7 pm | 11 Star Party at Lexington Elementary | 12 Camp with the Stars @ Oak Oasis Open Space Preserve | 13 Star Party at Tierra Del Sol Camp with the Stars @ Borrego Palm Canyon |
| 14 | 15 | 16 | 17 Star Party at Hilltop Middle School 7:30 pm | 18 | 19 Star Party at W.D. Hall School 7:30 pm until 2:30 am | 20 ☾ |
| 21 | 22 | 23 | 24 | 25 | 26 ☽ | 27 |
| 28 | 29 | 30 | | | | |

The Back Page

ANNOUNCEMENT

The next HOST TRAINING CLASS will be conducted at TDS on April 13th at 4:30pm.

OBSERVATORY WANTED

Do you own one of the private observatories at TDS?
Don't use it very often?
Almost never?
Want to turn it back into cash?
If you do, please contact me to discuss a possible sale.

Jim Janusz
760 360-3490
jjanusz@dc.rr.com

April Program Meeting by John Restivo

There will be NO Program Meeting for the month of April. I was not able to confirm a guest speaker within an appropriate time period. I apologize for any inconvenience. Refer to future newsletters and our website for up to the minute information.

Important information for Sky & Telescope Subscribers

All members who subscribe to *Sky & Telescope* can take advantage of a 10% discount on their books and products. When you order, tell the customer service representative that you are a participant in "The Club Plan" and give them the club's name.

MEMBERSHIP INFORMATION

Send dues and renewals to P.O. Box 23215, San Diego, CA 92193. Include any renewal cards from Sky & Telescope, Astronomy, or Odyssey magazine in which you wish to continue your subscription. The expiration date shown on your newsletter mailing label is the only notice that your membership in SDAA will expire. Dues are \$35 for Contributing Memberships; \$25 for Senior (Basic) Membership; \$3 for each Family membership. In addition to the club dues the annual rates for magazines available at the club discount are: Sky & Telescope \$29.95, Astronomy \$29, and Odyssey \$25.46. Make checks payable to S.D. Astronomy Assn. **PLEASE DO NOT send renewals directly to Sky Publishing.** They return them to us for processing.

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