

SDAA

San Diego Astronomy Association

Promising the Sun, the Moon, and the Stars...and Delivering!



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SDAA Business Meeting

Will be held at:

SKF Condition Monitoring
4141 Ruffin Road
San Diego, CA 92123-1841
August 13th at 7:00 pm

It's BBQ Season!

Mark your calendars. The annual SDAA summer barbeque is scheduled for Saturday, August 10 at Tierra Del Sol. Bring a potluck dish to share and then stay for the public star party that night.

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News and Notes

August 2002

Focusing for Astrophotography—Part 5 by Jerry Lodriguss

Editor's Note: This is part five in a series of articles written by Jerry Lodriguss that are being reprinted in the newsletter with his permission. You can see more of Jerry's work at www.astrofix.com.

Different Methods of Focusing

1. **Eyeballing it** - by unaided eye on the groundglass through the pentaprism

It would seem that the easiest way to focus is to just look through the viewfinder of the camera and try to focus.

It's not.

When we get to the faint stuff, we find that it is very difficult to do it this way. It's not that accurate for the bright stuff either.

When we look through a telescope to visually observe we usually don't have any trouble at all focusing the eyepiece, unfortunately the same cannot be said for focusing a camera.

The trouble is, with a camera, the image is projected onto the ground glass of the focusing screen first. Most screens, which seem quite bright for daytime work with fast lenses that focus with the diaphragm wide open at f/2.8 or so, suddenly seem quite dark at prime focus of an f/8 telescope.

We can pick a bright star to try to focus on, but the light from a bright star irradiates and spreads in the ground glass of the focusing screen making it difficult to tell when it is in focus.

If you do attempt to focus with your unaided eye through the viewfinder, at least try to pick a star that is not too bright. If you are trying to focus on an extremely dim deep-sky object or the field you want to photograph does not have any bright or moderately bright stars in it, some experts recommend you slew the telescope over to the nearest bright star, focus on that, and then slew the telescope back. Problems can occur with this method though, especially for users of Schmidt Cassegrains, if the main mirror moves during the slewing back after focusing.

Focusing through the camera's viewfinder also assumes that the viewfinder optical system of the camera is in collimation, that the focusing screen is in the correct position, and that the mirror is not out of alignment.

This method can also lead to some very uncomfortable positions just trying to view through the camera, for instance when refractors are pointed overhead, and when Schmidt-Cassegrains are pointed anywhere near the north celestial pole.

There is not much good to be said about trying to focus a camera through the viewfinder with the unaided eye. It does not have a very high percentage of success for the vast majority of people, and even those with exceptional eyesight find it is not consistently repeatable.

This method is not recommended.

2. **Through the Focusing Screen with a Magnifier**

A better way to focus is through the camera's focusing screen with the aid of a magnifier.

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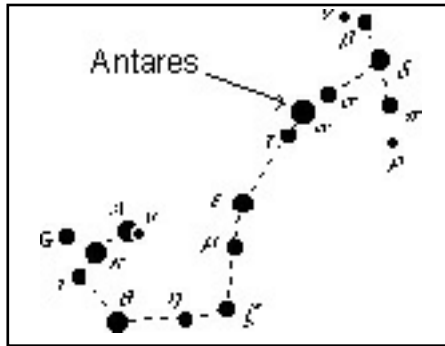
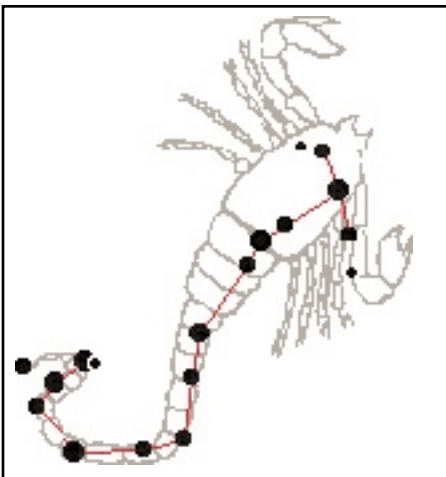
Astronomy 101

Astronomy 101 by Scott Baker

Beware the Scorpion!

Climbing into our southern skies this month is the constellation of the scorpion, Scorpius. Scorpius is a beautiful and large constellation that is situated to the West of the summer Milky Way, now rising in the Eastern sky in the early evening. Scorpius is one of the few constellations that actually looks like the creature it's named after. To find Scorpius, face south and look towards the horizon. Scorpius will be curving upward, with its tail in the Southeast and the claws and head pointing to the Northwest.

The constellation of Scorpius has many tales of how it came to be. The Greeks say that it was a scorpion that killed the great hunter Orion. Orion had boasted that he was the mightiest hunter and could kill all the animals on the Earth. The Goddess of the Earth, Gaea, was upset that Orion would make such a claim and decided to kill Orion to keep him from fulfilling it. Gaea sent a giant scorpion to sting Orion, and after a brief battle, the scorpion managed to sting Orion on his left heel (at the star Rigel). Zeus put Orion in the winter sky, to honor him, and Scorpius on the opposite side of the sky from Orion, to keep it away from the mighty hunter. In



New Zealand, the constellation is not a scorpion but a heavenly fish hook. The ancient Chinese say the constellation is not a scorpion but an Azure Dragon or "Dragon of the East." The Mayans of Central America named Scorpius "the sign of the Death-god."

The constellation of Scorpius is marked by its prominent central star Antares (Alpha Scorpii) the brightest star in Scorpius. Antares gets its name from the Greek *antares*, which translates to "Rival of Ares," Ares being the Greek equivalent of the Roman god Mars. This star has a distinct ruddy color, very much like Mars. In fact, the two were often confused with each other if they were in close proximity. The Roman name for Antares is *Cor Scorpionis*, the "Heart of the Scorpion" which is the equivalent to the Arabic title of *Kalb al Akrab* and the French *Le Coeur du Scorpion*. Antares, the 15th brightest star in the sky, is a red supergiant of exceptional size, rivaled only by its larger brother Betelgeuse, which is, ironically, in the constellation of Orion. Antares, if placed in the center of our solar system, would extend outward, engulfing the Earth, Mars, and the asteroid belt!

If you have a small telescope, or binoculars, scanning across this area of the sky, you'll find many fine objects such as globular clusters, open clusters and nebulosity. Prominent objects are Messier 4 and 80, both fine globular clusters, and Messier 6 and 7, pretty open clusters. For a challenge, with larger scopes, try to pick up the globular cluster NGC 6144 very near Antares, (you may have to put Antares just out of the field of view to see

this object). Scanning Scorpius is a great way to spend a summer's evening!

Next Month Sagittarius the Archer.

Eyepiece Shootout 5, Clash of the Titans by Bret Akers and John Kuhl

No, we're not reviewing a bad 1981 Harry Hamlin movie...

The competitors:

The 35mm Tele Vue Panoptic is a huge 1.75-pound, low-power, wide-field 2" eyepiece. For the \$365 price of admission, you get a 6-element eyepiece with a 68-degree apparent field of view and 24 mm of eye relief.

If the 35mm Tele Vue Panoptic is huge, then the 31mm Nagler Type 5 is monstrous. It's a 2.2-pound ocular (Yikes!) that uses 4 different types of glass in a 6-element configuration. Since it's a Nagler, you get an 82-degree apparent field; but this one also gives you 19mm of eye relief. Beware! This one doesn't come cheap. At \$620, it's more expensive than many entry and mid-level telescopes. Actually, it has lens elements bigger than the objective lens on Tele Vue's Ranger and Pronto telescopes.

So why are we doing this review? The 31mm Nagler is almost twice the cost of the already pricey 35mm Panoptic. Quite simply, these are 2 of the best eyepieces around for low-power, wide-field views. They are both well known for being sharp and having great contrast. However, is there really that much difference, and is there any real reason to spend the extra \$255 for the Nagler other than to say you have one?

Testers and observing conditions:

When using eyepieces with focal lengths this long, you need to look at the focal length of the scope(s) you'll be using. We decided to switch to a 12.5" f/5 Dobsonian with a 2.1" secondary to keep the exit pupils at 7mm or less and the

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secondary shadow to just over 1mm (1.18mm with the Panoptic and 1.04mm with the Nagler).

The test was conducted at TDS on July 13th under variable skies and average seeing conditions. As the night progressed, the conditions improved. However, due to the low powers, the conditions didn't present much of an issue.

Here we go...

Coatings: Four people crowded around these eyepieces when we started to look at the darkness of the coatings and intensity of the reflections from the ambient light. The brightest reflections in the Nagler were darker than the brightest reflections in the Panoptic. There also seemed to be fewer reflections in the Nagler. **Edge: Nagler**

Field Flatness: We went over this one for quite a while. It's been reported in the past that the Nagler has less pincushion distortion than the Panoptic, but the difference is marginal at best. For all intents and purposes, it's too close to call. **Edge: Draw**

Chromatic Aberration: The edge of the Moon is a very harsh test for chromatic aberration. So we said, "Why not?" Both eyepieces show some color fringing at the transition of the bright Moon to the dark sky. The Panoptic displayed a yellow cast, but it was fairly mild. The Nagler, on the other hand, had a pronounced color ring with yellow, green, and blue fringing that became even worse at the edge of the field. **Edge: Panoptic**

On-Axis Sharpness: We slewed the scope over to M4 and looked at the sharpness of both the core stars and the edge stars. At first glance this looked like another draw. But, during a period of steady seeing, the Nagler seemed to have a slightly better "snap" to focus and a slightly sharper image-emphasis on "slightly." **Edge: Nagler**

Off-Axis Sharpness: This test was easier than the on-axis sharpness. The Nagler was



fairly sharp all the way to the edge of the field—very impressive on an f/5 scope. The Panoptic, while very good, just didn't hold the image quite as well at the outer edge of the field. **Edge: Nagler**

Light Transmission: This test goes to the Nagler and it didn't take very long to see. **Edge: Nagler**

Contrast: This is where the eyepieces really separated. Several of the other tests resulted in slight to almost no difference between the two. On contrast, however, the Nagler clearly pulled ahead. If you used the Panoptic on its own, you'd think you were looking at an image with a lot of contrast. The Nagler took it to another level. **Edge: Nagler**

Eye Relief and Comfort: Both of these eyepieces are a joy to use, have ample eye relief (Nagler: 19mm, Panoptic: 24mm), and are very comfortable for extended observing sessions. If you're an eyeglass wearer, the extra 5mm of eye relief on the Panoptic may be meaningful, but otherwise, the 82-degree apparent field of view and the slightly better "snap" to focus of the Nagler breaks the tie. **Edge: Nagler**

Conclusions: The Nagler won 6 of the 8 categories and is a better eyepiece, optically, than the Panoptic. Now that

that's out of the way, is it \$255 better? If you have a fast f/ratio telescope with great optics, and you can afford it, the Nagler is worth it. The superior contrast is a big value-add to the Nagler and may in itself be justification for the extra cost if you spend a lot of time looking at extended objects with low surface brightness (the Veil comes to mind). Just try before you buy.

When would you want the Panoptic? In slower f/ratio telescopes, the sharpness difference between the two eyepieces should be less evident and the AFOV advantage isn't as significant if your scope is driven. In this case, you may want to think about saving the \$255. Just remember that you would be losing contrast.

Now, there are a couple of other drawbacks to the Nagler besides cost-size and weight. If your scope has balance issues, they will be evident with the 2.2-pound Nagler. Its sheer bulk is also something that should be carefully considered. Remember—use both hands when holding a 31mm Nagler.

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



Eyepiece Considerations

By John Kuhl

As far as I'm concerned, the most important things you can buy for your telescope are quality eyepieces. You probably gave a lot of thought and consideration to the purchase of your telescope. Maybe you wanted to get the best optics you could afford, or maybe you wanted as many features as you could get. However, when using it visually, your telescope is only as good as the eyepieces you use in it. The mirror(s) and/or lens(es) gather the light, but it's the eyepiece that magnifies and focuses the image. If you have a great telescope, you will need great eyepieces to get the most out of it. Here are some things to consider before you buy your eyepieces.

Your needs

- What type of telescope do you own? Reflector, refractor, and Cassegrain telescopes perform differently with the same eyepiece.
- Do you have a short focal length or a long focal length telescope? An eyepiece that would yield low power in a short focal length telescope, will give you medium or even high power in a long focal length scope.
- Do you wear glasses when you observe and need a lot of eye relief? Some eyepieces are specifically designed to have long eye relief. But, many high-power eyepieces are notorious for having short eye relief. Even people who don't wear glasses sometimes have trouble with these eyepieces.
- What type of objects do you most often observe? Planets and double stars require high power while deep sky objects usually need medium to low power. Match your eyepieces to what you are interested in observing.
- What focal length eyepiece gives you the biggest exit pupil you want to use? If possible, you should try to match your telescope/eyepiece combinations to your eyes. The exit pupil for any given eyepiece is its focal length divided by your telescope's f/ratio.

Cost

Like most everything in life, you get what you pay for--eyepieces are no different. Prices range from the cheap to the very expensive. A person new to astronomy may have a hard time telling a good eyepiece from a premium one, but most people have no trouble telling a good eyepiece from a cheap one. You are better off having just a couple of premium eyepieces than a case full of cheap ones. Also, premium eyepieces usually have a better resale value, so try to get the best you can afford.

Size and weight

Almost all eyepieces are either 1 1/4" or 2" in size. They range from the small and light to the big and heavy. They can have a narrow field of view or a very wide one. To get the widest field of view possible you need to use big and heavy 2" eyepieces. To use these eyepieces your telescope must have a 2" focuser. However, these types of eyepieces can lead to balance problems. You may need to buy or make a counter weight system for your telescope to offset the mass of a big eyepiece. You can now buy small, lightweight 1 1/4" wide field eyepieces, but the lowest power these can be made in is about 18 to 19mm. Beyond that you are in the realm of the 2 inchers.

Try it first

If I said it once, I've said it a hundred times. Try the eyepiece you are interested in before you buy it. What looks good to my eye may not look good to your eye. We are lucky to belong to a club like the SDAA. Chances are pretty good someone in the club has the eyepiece you are interested in and may let you test it. Most of the members I've met and know are friendly and helpful. When looking at eyepieces you may want to buy, you should try to use them in your telescope.

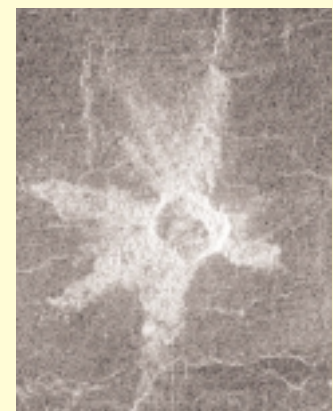
Summation

We are lucky to live in this day and age of eyepieces. The choices are endless compared to just 10 or 20 years ago. There are eyepieces of every type you can imagine. I have intentionally left out brand names so as not to stir up any controversy. Opinions vary

and everyone has their favorites. Get the eyepieces that suit your needs and you will be able to enjoy the views for years.

Past Program Meeting by John Restivo

The July Program Meeting provided 47 members and guests the opportunity to enjoy another educational and intriguing journey into outer space. Dr. Gary Peterson, professor of Geology at San Diego State University, presented the audience with another informative lecture, taking us to the planet Venus. With a surface temperature of 855 degrees Fahrenheit, the planet boasts of a surface pressure of 92 times that on the surface of earth. Dr. Peterson related that Venus's atmosphere is composed of 96% carbon dioxide and about 3+% nitrogen versus earth's atmosphere of 80% nitrogen. With slides, graphs and illustrations of data sent back from the Russian landers Vega 1 and 2 (whose lifespans were one hour due to the heat and pressure), we were given a facet of Venus that many were not aware of. This was followed by an interesting period of questions and answers.



Venus:

Magellan image of large impact crater in the Eistla region.

Photo courtesy of NASA Image eXchange, nix.nasa.gov



San Diego Astronomy Association

Camp With The Stars by Michael Dietz

We had 8 members attend the July Camp With The Stars program at William Heise Campground. Two members came up on Friday and hosted a star party for about 60 to 75 campers. There were 2 telescopes set up for solar viewing on Saturday, and about 50 people came by to view the sun. That evening about 100 people came by for my slide presentation on the summer sky, and we had about 175 - 200 people come out to view the summer sky through the telescopes. The following morning I spoke with the ranger at Heise and she mentioned that we were one of the most popular programs at the campground, and that they receive numerous calls asking when we are at the campground. There are just 2 more dates that we will be at William Heise Campground this year.

We will be at William Heise Campground the weekend of August 3rd for this month's Camp With The Stars program. The campground has many hiking trails and lots of shade. We will also be set up at William Heise Campground the weekend

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SkyWatch for August, 2002

John Mood



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

Sat., 3 Aug. ---- STAR PARTY @ Tierra del Sol.

Thurs., 8 Aug. ---- NEW MOON, 12:15 p.m.

Fri., 9 Aug. ---- Try to spot the 32-hour-old New Moon tonight!

Sat., 10 Aug. ---- BAR-B-Q & STAR PARTY @ Tierra del Sol. Bring a dish & yr appetite!!!

Mon., 12 Aug. ---- The PERSEID METEOR SHOWER peaks tonight; it'll be best toward dawn on the 13th. However, keep in mind that one can spot good Perseids from the 10th thru the 15th, again better after midnight.

Thurs., 22 Aug. ---- FULL MOON, 3:29 p.m.

Sat., 31 Aug. ---- STAR PARTY @ Tierra del Sol.

Fri., 6 Sept. ---- NEW MOON, 8:10 p.m.

Sat., 7 Sept. ---- STAR PARTY @ Tierra del Sol; try to spot the 24-hour-old New Moon Tonight!

EVENING PLANETS:

VENUS [*] is racing across Virgo, heading for a very close rendezvous w/ SPICA on 30 & 31 Aug. Telescopic PLUTO [***] is in Ophiuchus @ 13.8 mag. Both NEPTUNE (mag. 7.8) [**] & URANUS (mag. 5.7; hence naked eye!!) [*½] are in Capricornus.

MORNING PLANETS:

SATURN [*] glows in Taurus, its gorgeous rings wide open. JUPITER [*] is visible in Cancer but is still in morning twilight until the end of the month.

BEGINNING & EXPERIENCED OBSERVERS ----

Let's talk about CETUS, the Whale, high in the southeast after midnight. It always looks to me exactly like an orca ("killer whale") instead of one of the larger "regular" whales (contra astronomers who say the constellations don't look like their names!).

The reason, however, to pay attention to this constellation now is the expected maximum this month of the 1st known "variable star," OMICRON CETI, named MIRA, "the Wonderful," when it was discovered early in the 17th Century. It fluctuates from about 9th to about 3rd magnitude in a period of about 11 months. Mira is a pulsating red giant variable, meaning it swells up & brightens (sometime so big that if it were in our solar system, it would nearly reach Jupiter!), then contracts & dims. But it is "variable," so one never knows when it will be at its brightest, nor how bright it will get. In Feb, '97, it got up to 2nd magnitude & I cd easily see it from my house in OB.

Because Cetus will be too near the sun the next few years when Mira brightens, you won't have a chance to see it in a fully dark sky again 'til 2007. So spot it now & watch as it gradually fades into naked eye invisibility, probably by Halloween.

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!



San Diego Astronomy Association

A Long Tradition Is Ending by John Restivo

For many years, the San Diego Astronomy Association and the Ruben H. Fleet Science Center has shared a strong bond of bringing the community and visitors to San Diego an avenue of education at Balboa Park via our monthly Program Meetings. An annual contract was drafted with the Fleet Center that always provided the lecture hall free of charge to the SDAA on the third Friday of each month. Many guest speakers, including John Dobson and the Fleet's astronomer, Dennis Mamana, provided many evenings of fun and education, with the amateur astronomer AND public entertained. Sometimes, even when our guest speaker or the Q & A period extended beyond 9 pm, the Manager and ushers were patient and allowed us to finish late. We were also allowed to store the club's library of books, charts, magazines, videos and software at the Fleet Center.

Unfortunately, this year brought an uncertainty to our continued usage of the lecture hall, due to a lower attendance at the Fleet Center. The contract cut back our hours of use, and this had placed a burden on our guest speakers, especially if the speaker was out of town. The Board discussed this at length for months trying to work out a plausible solution. Ultimately, it was felt that a new location would have to be chosen. Brian Staples, a former Board member, spent many hours e-mailing and speaking with both city officials and Park Rangers, and effective August 2002, the San Diego Astronomy Association will be holding our monthly Program Meetings in the theater at the Mission Trails Regional Park Visitors and Interpretive Center through December 2003. We will be holding our Board Meetings there as well. The Stars in the Park WILL STILL BE HELD at Balboa Park on the first Wednesday of the Month, in conjunction with the Planetarium Show held at the Ruben H. Fleet. We will still work with the Ruben H. Fleet via any request they may have regarding any astronomical event they wish us to participate in.

The Board apologizes to members for any inconvenience this may cause; however, it was felt that the club has a responsibility to its membership to insure a Program Meeting with a guest speaker with a guaranteed time and location, a long standing tradition and a main aspect of the club.

We have always appreciated the generosity given to the SDAA by the Ruben H. Fleet Science Center. Hopefully, in the future, the SDAA can once again take a more active role working with the Science Center. For now, please accept a heart felt thank you for all of your kindness and assistance.

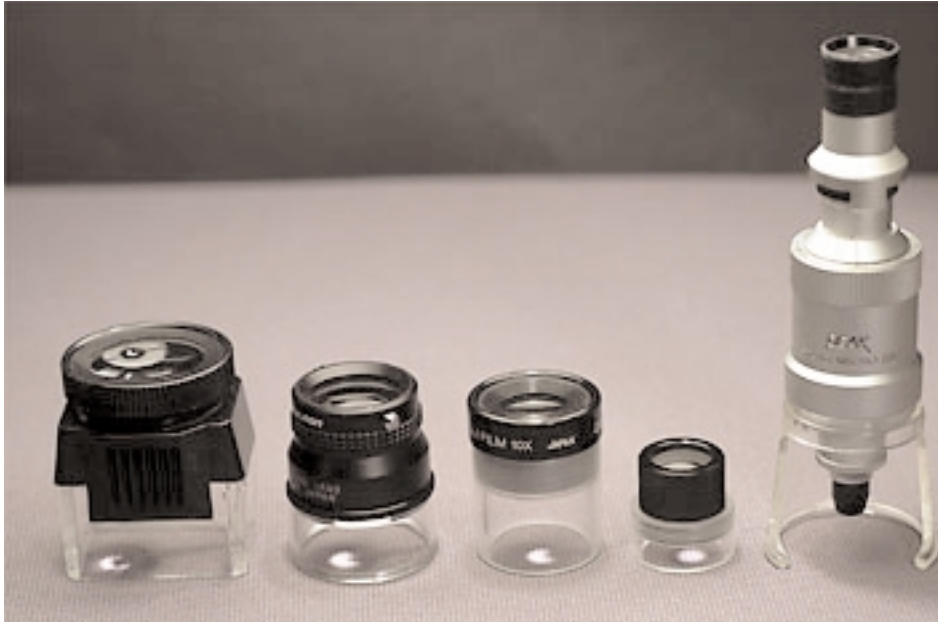
August Program Meeting - Gadgets by John Restivo

The August Program Meeting will be held at the Mission Trails Regional Park theater on August 21, 2002. Due to numerous inquiries, I've decided to hold our annual Gadget Night this month. This is your evening to share with the rest of the guests and members your forte of astronomy. Have a special lens, telescope, mount, drive, guider, filter (stellar or solar) - well, you get the idea. It's your chance to share with the club your facet of astronomy with a "show and tell" format. This has always been a fun and relaxed evening that has generated ideas and given new concepts to amateur astronomy. If you have found a new software program or have a way of making astrophotography a tad bit easier, won't you share it with the rest of the members? We have plenty of time as the doors will open at 6:30 pm and close at 9:30 pm. Use your imagination and help make this another fun Gadget Night. Check in with me at the door - I will be there around 6:30 or 6:45 pm. If you will need any special audio/video equipment please call me (858-268-3856) before the event, as there may be some limitations, and I can advise you accordingly. This is always a fun evening, and I look forward to seeing many of you there.

New Newsletter Co-Editor by Julie Quinn

My family and I joined the SDAA recently in order to meet some people who don't think we're crazy for spending our nights looking skyward instead of at a movie screen. When our first issue of the newsletter arrived, I noticed Bret Akers' call for an assistant and impulsively sent him an e-mail offering my services. Your editor accepted my offer, and so, to the titles Wife (to Mike, whom many of you have probably met at Tierra del Sol over the past couple of months), Mom (to a 3 1/2-year-old budding astronomer and 7-month-old technophile in-training) and Formatter-at-Large (mostly for SDSU graduate students so tired of their master's theses that they're happy to hire someone else to get them into shape for publication), I now add SDAA Newsletter Co-Editor. My knowledge of astronomy pales in comparison to that of the SDAA members I've met so far, but I do a fair job moving words and pictures about on a computer screen, so I believe I will serve your newsletter well. I'm a native of Orange County, but I have lived in San Diego for over 10 years. I'm quite new to astronomy so I have a lot to learn from my fellow SDAA members, and I look forward to meeting more of you at the upcoming SDAA events. Mike is a career Navy man with a couple of years left until retirement. While his new hobby is looking at outer space, on the job he explores Earth's inner space with the robotic submersibles of the U.S. Navy's Deep Submergence Unit.





A variety of magnifiers can be used to improve focus

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Any additional magnification that can be used will help, but a range of 15x to 25x is usually optimum for attempting to achieve the most accurate focus.

The magnifier can be placed directly on the focusing screen for those cameras with removable finders, or placed behind the eyepiece on those cameras where the finder can't be removed.

A variety of magnifiers can be used to improve focus

Most high end camera manufacturers make accessory magnifiers that either replace the standard finder or attach to the eyepiece, or you can easily make your own. Some provide a 90 degree right-angle viewing attachment that makes it more convenient to focus when the scope is aimed high overhead.

Zen and the Art of Focusing

Careful visual examination of a star of the correct brightness on a good, bright focusing screen can yield a good focus, if the photographer racks through the focus point from one side of focus, through focus and past enough times so their brain can become familiar with what the point of best focus looks like. Then subconsciously using

the muscle memory of the focusing hand combined with the brain's memory of the appearance of the point of focus, the photographer can come directly to the point of apparent focus and stop dead, hopefully at the exact point of focus.

Use the faintest star that you can see directly without averted vision. Close double stars of similar magnitude that are not too bright are also good to focus on.

With the Magnifier Directly on the Focusing Screen

The magnifier should be first placed securely on the camera's focusing screen so that it can not move during the focusing process. It should then be carefully focused on the bottom of the groundglass in the daytime and the focus should be locked.

The Nikon DW-4 6x High Magnification Finder

Nikon makes a special magnifier for the F3 camera, the DW-4, that replaces the regular finder and supplies 6x magnification. It is expensive, but excellent for framing star fields because it magnifies the entire field of view. They make equivalent magnifiers for other cameras in the F line of bodies with slightly different designations.

By lucky coincidence, with a D screen in

my F3 and the DW-4 and my 130mm aperture f/8 refractor, the faintest stars that I can see on the groundglass match almost exactly the faintest stars plotted in Uranometria.

For framing difficult to see deep-sky objects, I just photocopy the Uranometria chart and place a template over the area that is the same size as my scope's field of view and mark the field with a pen. In the field I use a small 4 x 5 inch battery powered light box with heavy red filtration (I use several layers of Rubylith, available at graphic's supply stores). I place the photocopied chart upside down on the light box so the orientation is correct for the view in the scope with the DW-4 since the view is reversed (because of the reflection off the mirror in the camera). Then I dial in the field with the R.A. and Dec coordinates on my setting circles, and double check the star field against the chart.



Nikon DW-4 6x Magnifier

Poor Man's DW-4

You can make your own version of the DW-4 that works just as well but is much less expensive.

Purchase a Peak 8x loupe (Peak item #PK2018) for \$29.95 at B&H Camera in New York (800-947-6650), B&H catalog item number is PE2018.

Sand or shave off some of the plastic on the base of the loupe so that it will fit into the area where the pentaprism used to go. Take some of the plastic off the bottom of the

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**Poor Man's DW-4 Peak 8x Loupe
Trim the bottom and Edges so it fits**

loupe as well to shorten its height a bit. Make sure the bottom is flat though after you do this. Wrap the transparent part of the base of the loupe with black electrical or masking tape to keep stray light out.

A little extra must be taken off the base of the loupe so the optics can focus on the bottom of the groundglass. You can judge about how much has to come off by the thickness of the frame of the focusing screen. It won't hurt to take a little bit too much because you will be able to raise the height of the eyepiece of the loupe with the screw thread mechanism that is built in.

Place the loupe on the top of the focusing screen, making sure it is flat all the way around. If you have reduced the size of the base carefully, it should fit snugly and not fall out. If there is any room for it to move, find a way to secure it, perhaps with rubber bands.

The loupe should not be able to move once it is in place, and this is critical to successful focusing because the loupe must first be focused on the bottom of the groundglass where the image forms. Focus on the bottom of the groundglass in the daytime. Be careful not to focus on the top or middle of the focusing screen sandwich of two pieces. Sometimes placing a dot on the bottom of the focusing screen with a felt tip pen or Sharpie will help you locate the bottom when focusing on it.

Once you have the loupe focused on the bottom of the groundglass, lock the focus in place and tape it down. It is critical to remember that each time you use it, the focus must be on the bottom of the groundglass.

More Power!

For a long time I used the DW-4 alone to focus. It was good, but as I began to age, my eyesight began to deteriorate.

Michael Stecker, well known Mt. Pinos Rat Pack member, suggested I make a home made magnifier that used more magnification.

More magnification is the secret to better focusing by eye on the groundglass, and not just for aging eyes.

I scavenged an .965 eyepiece out of an old pair of binoculars. From a tiny department store refractor, I used the screw-on collar that locks the .965 inch diagonal or eyepiece. This piece acted as a collar so the height of the eyepiece could be adjusted as the collar sat on top of the focusing screen. The collar sits perfectly flat on the square metal edges of the focusing screen. The lockdown on the collar lets me focus the eyepiece on the bottom of the groundglass. I hold the rig in place with rubber bands. It provides about 15x magnification.

You can also use normal telescope eyepieces, but the part of the 1.25 inch barrel that slides into the focuser must be shortened so the eyepiece can focus on the bottom of the groundglass.



**Top: Scavenged eyepiece and collar
Bottom: The 15x magnifier in place**

You can calculate the magnification power that an eyepiece will give by dividing 250 by the focal length of the eyepiece. For example, a 25mm eyepiece would give 10x magnification.

B&H also sells a more powerful 15x Peak Loupe for \$18 (B&H item number PE1962).

Other magnifiers with adjustable focus can easily be used, but the base usually must be trimmed so they can focus on the bottom of the groundglass.

Attachments for Cameras without Removable Finders

Many cameras popular for astrophotography do not have removable pentaprism finders, such as the Olympus OM-1 and Nikon FM-2.

Manufacturers make attachments that provide a little extra magnification and perhaps a 90 degree right angle attachment. Olympus makes the Vari-Magnifier, and Nikon makes the DR-3. These devices are very unsatisfactory for astrophotography however.

They do not really provide enough magnification and the view is very dim and limited. Magnification is limited to 2x to 3x, and the small aperture optics and diaphragm stop limit the amount of light.

After-market accessory manufacturers do make devices that are specifically made for astrophotography and can be useful for cameras that do not have removable finders.

B&K Products makes an accessory for focusing the Olympus OM1 camera that uses your own diagonal and eyepiece to focus through the viewfinder.

You can also construct your own similar device by adapting a small 6 x 30 finder telescope. You can either lengthen the tube so you can close focus on the focusing screen of the camera, or you can use a transfer lens and focus the finder on infinity.

This small telescope is used to view the focusing screen through the viewfinder. It should be focused on the bottom of the groundglass of the focusing screen during



Left: 6x30 scope thru the finder; Right: 6x30 scope thru DW-4

the daytime and locked in position.

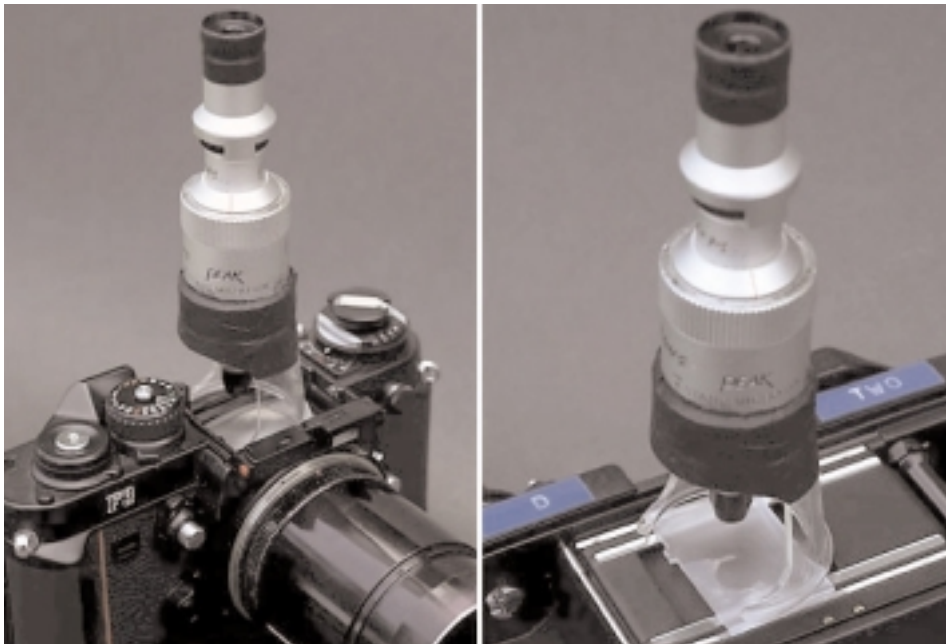
Doc G has an excellent discussion of small telescopes used as focusing devices at www.mailbag.com/users/ragreiner/focusdevice.html#Top

Very High Power Magnifiers

It is also possible to use a magnifier with 50x to 60x power and focus through the

groundglass of the focusing screen, or place a groundglass on the rails of the camera back and focus through it.

In my experience, this is difficult because at this power, tolerances are extremely critical and it is hard to fold focus on the groundglass. But, others have successfully used this technique, such as Gene Horr with the Takahashi FM-60 Focusing Microscope.



**Left: 50x loupe on the focusing screen.
Right: 50x loupe on groundglass on the rails.**

(continued from page 5)

of September 7th. You are welcome to come up on Friday and camp an extra night at Heise. Everyone who brings a telescope to share with the campers can camp for free.

As always, we will set up for solar viewing around noon at Heise in the meadow area. If you have a solar filter please join us in the afternoon. If you plan on attending please let me know at (619)334-9930 so I can make arrangements to accommodate everyone.

To reach William Heise take Hwy. 67 North through Ramona which then turns into Hwy 78. Continue East on Hwy. 78 through Santa Ysabel heading towards Julian. A couple of miles before Julian, turn right on Pine Hills Road and head South. Continue about 2 miles to Frisius Drive and turn left. Head East on Frisius Drive about 1 1/2 miles to the park entrance. Let the rangers know you are with the SDAA and they will show where we will be camping. We will be set up in picnic area II East of the caravan area.

This month we have a bonus Camp With The Stars program at Paso Picacho Campground in Cuyamaca Rancho State Park on Saturday August 31st (Labor Day Weekend). If you would like to spend the entire holiday weekend at the campground, please let me know so that I can make special arrangements. Paso Picacho is about 800 feet higher than Heise, and we have always had excellent viewing from here.

The Campground is located a couple of miles South of Cuyamaca Lake on Hwy. 79 and about 12 miles North of I-8. We will have a solar observing program from 10 a.m. to noon. The evening viewing will begin at about 8:45 p.m.



San Diego Astronomy Association

SDAA Board Meeting Minutes for July 2002

The meeting was called to order by Jim Traweek at 7:15 pm. In attendance was President Jim Traweek, Vice President John Restivo, Treasurer Jennifer Pesqueira, Star Party Director Mike Dietz, Site Director Terry Stewart, Education Director Bob Wetzel, Public Pad Director Sean Houghton, Newsletter Editor Bret Akers, and guests Sean & Diana Kelly, Brian Staples, Doug Johnson, and Brian McFarland.

Treasurer's Report

The SDAA accounts are as follows:

- Checking -- \$8,937.37
- Money Market -- \$8,349.22
- CD #1 -- \$5,484.83
- CD #2 -- \$5,155.46

There are 545 members as of the end of June.

It was decided at this meeting that no change to membership categories would take place as discussed at last month's business meeting.

Site Maintenance Report

A weed-eating event is planned for just prior to the August BBQ. There have been a few complaints about locks (warming room, bathroom, and front gate). It isn't clear exactly what the problem is as they work as

advertised. Instructions for their use are on the website, and will be included in an upcoming newsletter. The warming room requires some rodent control, but no decision was made as to what to do.

Upcoming tasks for when the weather cools include installing footings for the water tanks, installing a curb under the main gate, etc.

Pad Site Report

Preparations are underway to provide electricity for the new private pad site area. A suggestion was made to name the three East/West roads that run through the private pad site area. A recommendation from the floor was made to name them Staples Way, Traweek Avenue, and McFarland Boulevard, but that recommendation appeared to fall on deaf ears.

Star Party Report

There are six star parties scheduled for this month, and seventy-five for the year. The most recent star party at Balboa Park had a turnout of about twenty members, but was clouded out. Next month, we have star parties at Heise and Paso Picacho campgrounds. As further proof of the popularity of this program we continue to receive requests for star parties, and some are already being scheduled for next year!

Library/Education Report

Some new additions to the library include Video Astronomy, The Art & Science of CCD Astronomy, John Dobson's book on telescopes, a CD ROM from Scientific American on science projects, and Advanced Sky Watching. The club needs a new home for the library - alternative locations are being investigated. Nick Marilao will be teaching an Astronomy class for the Learning Annex.

Vice President's Report

There will be no access to the audio/visual room at Mission Trails for the next program meeting. Alternative solutions for the presentation are being investigated. Program meetings will not be held at the Fleet next year as we have finalized arrangements to have them at Mission Trails.

A motion was passed to move the business meeting from SKF to Mission Trails and it passed. The SDAA greatly appreciates the support SKF has provided during the last couple of years in allowing us use of their conference room.

Newsletter Report

In response to a request that appeared in the latest newsletter, we have received two offers to assist in editing the newsletter.

The meeting adjourned at 8:45 pm.

Clip and Save

2002 Board of Directors and Chairpersons

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TDS Site Director, Terry Stewart
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SDAA Calendar of Events

August 2002

S	M	T	W	T	F	S	
				1	☾	2	3 Star Party at Tierra Del Sol
4	5	6	7 Stars in the Park 7 pm	8	●	9	10 Summer BBQ & Star Party at Tierra Del Sol
11	12	13 SDAA Board Meeting 7 pm	14	15	☾	16	17
18	19	20	21 Program Meeting	22	○	23	24
25	26	27	28	29	30		

The Back Page

Acknowledgments by Michael Dietz

The club would like to thank Rich Bentley, Tim Boller, Carolyn Corless, Peter DeBaan, Erik DeVine, Mike Dietz, Stu Hall, Jose Magsaysay, Nick Marilao, Joe McGerald, Laurie Morin, Bob Nanz, Ken Olson, Jennifer Pesqueira, Charlie Wallis, Bob Wetzel, Bill Whalen, and Marjorie White 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.

Star Party Report by Michael Dietz

We held 7 star parties in July. Through the month of July, we have held 75 star parties this year which averages out to about 11 per month. We have a rare situation this month. There are no scheduled school or scout group star parties this month. We will be at Balboa Park, however, on August 7th for our Stars In The Park program. Stars at the Site will be on August 3rd and August 10th (annual summer BBQ). The school star parties will start again on September 9th at Flying Hills Elementary located at

1251 Finch Street in El Cajon. The viewing starts at 7:30 p.m., but there will be a BBQ at 6:30 p.m for those of you that can come early.

Many thanks to all of you that have helped with the star party program this year. It looks like we will surpass last year's record 125 star parties so we can always use more help. As always, please contact one of the star party directors (Rich Bentley, Mike Dietz, Joe McGerald, or Bob Nanz) to let them know that you will be attending. That way they can let you know of any changes or cancellations.

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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