San Diego
Astronomy Association

Celebrating 40 Years of Astronomical Outreach

News and Notes February 2004

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P.O. Box 23215, San Diego, CA 92193-3215

SDAA Business Meeting

Will be held at:

SKF Condition Monitoring
4141 Ruffin Road
San Diego, CA 92123-1841
February 10th at 7:00 pm

Special Program Meeting
February 18 at 7:00pm

One-on-One
Beginner's Astronomy
with Scott Baker.

See page 5 for details.

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The TDS Fence Works
by Steve Harris

Back in May of 2000, the SDAA had a great debate about erecting the chain link fence that now surrounds the Tierra del Sol observing site. At the time, a three-strand barbed wire fence encircled the club property, and only the observatories had a chain link fence with locking gate. Advocates of the new fence believed a new fence would discourage illegal alien traffic through the site and make it a safer place for astronomers to stay during the night. Opponents felt illegal aliens were not an issue and/or the cost was too high to justify anything more than a replacement barbed wire fence. The board voted to set up a special fund to supplement the added cost of a chain link fence and the membership responded generously with donations to build it.

On the Star Party night of Saturday, 9/20/03, I was at the site for the entire night with my 6-year-old son. We always pitch a tent along the southern boundary of the club property next to the chain link fence at Private Pad 27. My Private Pad partner and his 8-year-old son were there that evening and were sleeping in their truck. At approximately 3:30am on Sunday morning, I was awakened by a loud barking dog. Within a few minutes I started hearing footsteps. Before I knew it, a large group of people was walking along the fence and past our tent. My estimate is that about 20 people walked by. During this event, I lay motionless in the tent so as to not bring attention to myself; luckily my son did not wake up during the encounter. I could tell that several people stopped, presumably because they saw our tent, and I could hear them whispering in Spanish to each other. Fortunately they did not enter the property; however, I stayed awake for some time afterwards, just in case.

On our way home to San Diego on Sunday, we drove to Campo to show our boys the Pacific Crest Trail Marker and the border fence. While there, we were approached by a Border Patrol agent. He asked us not to drive the border fence road back to the east as the Border Patrol was very busy in the area. He said it had been an active night, so I told him our story. I sent an email to the Border Patrol on September 29 describing the event and asking a number of questions about safety in the area. I was hoping to have a reply to share with the club, but they never replied.

Accounts of encounters with illegal aliens circulated within the club for many years prior to the fence being built. This was my first encounter in 14 years of observing at TDS. I am glad the fence was built, and I'd like to acknowledge the club leaders who pushed its construction back in 2000.

My report to the SDAA membership is that the fence works. Illegal aliens are walking around our property rather than through it. This most assuredly makes the TDS observing site safer for all of us.

Your name here!

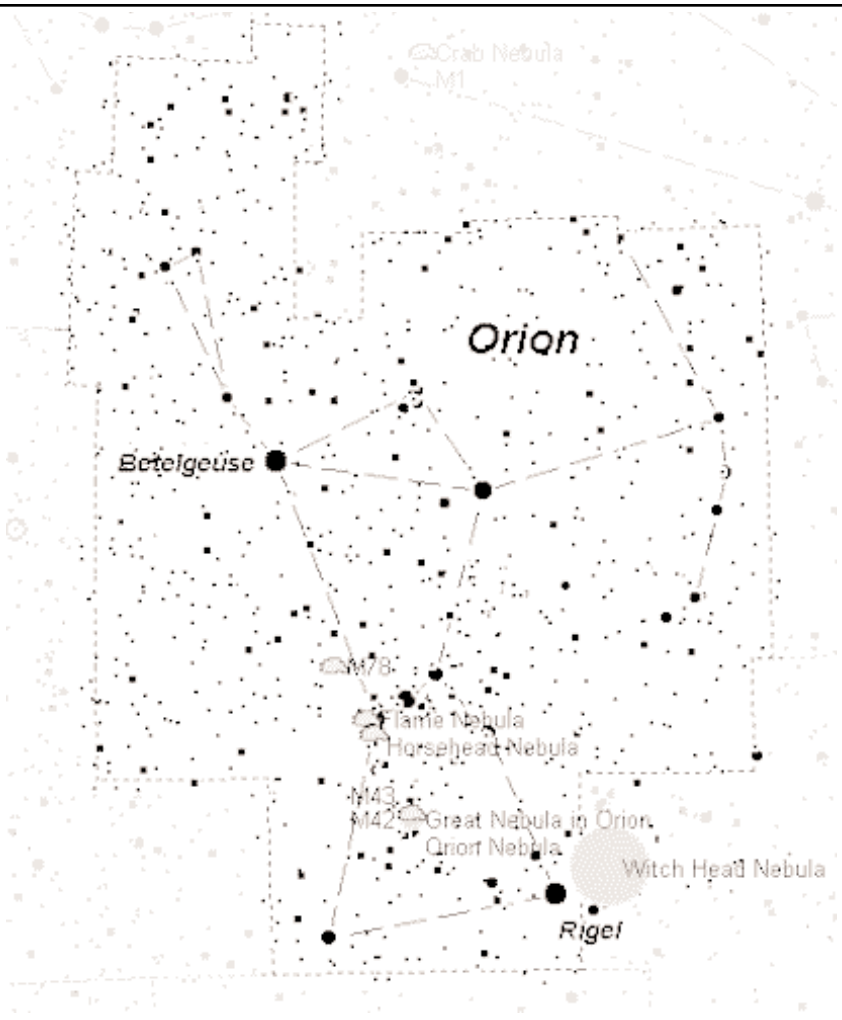
The SDAA is in need of a newsletter editor to take over the production of the *News & Notes*. If you're computer proficient and would like to volunteer a few hours a month, contact Julie Quinn at newsletter@sdaa.org or (619) 443-1836.

Astronomy 101

Astronomy 101
by Scott Baker

Is that the little dipper?

When I do public star parties or when people find out that I'm into astronomy, I'm frequently asked, "Is that the little dipper?" I'll turn and see them pointing to the southern sky and immediately know what they're pointing at. If you go out tonight and look due south, you'll see a "little dipper" Three fairly bright stars, angled downward in a straight line, a fourth star down below the upper one and three even fainter stars that form "the handle." This grouping of stars is not the famous Little Dipper of the north, also called Ursa Minor, but is, rather, the center of the much more famous constellation of Orion. Orion "The Hunter" is one of my favorite winter constellations. The dipper you see is really his belt (remember "Orion's Belt" from "Men in Black"?), and the handle of the dipper is his sword, hanging down from his belt.



There are many old tales of how Orion came to be in the stars. One tale explains

that Orion was in love with Merope, one of the Seven Sisters who form the Pleiades, but Merope would have nothing to do with him. Orion wandered the Earth, trying to find ways to turn Merope's love to him, and his tragic life ended when he stepped on Scorpius, the scorpion, whose sting killed him. The gods felt sorry for him, so they put him and his dogs (Canis Major and Canis Minor) in the sky as constellations. They also put all of the animals he hunted (Taurus the bull and Lepus the rabbit) up there near him. Scorpius, however, was placed on the opposite side of the sky so Orion would never be hurt by it again.

Another tale says that Orion was such a mighty hunter that he boasted he would kill all the animals on Earth. This

(continued on page 3)

Astronomy 101
(continued from page 2)

angered Gaea, Goddess of Earth, and she decided that Orion needed to be slain, just in case he could carry out such a mighty boast. Gaea sent a giant scorpion to slay Orion. After a brief battle, the scorpion stung Orion on his heel, where the star Rigel is. Orion and the scorpion were placed in the heavens, on opposite sides, so that they would never do battle again.

The final tale is of love and deceit. It was said that the goddess of wild animals and of the moon, Artemis, fell in love with Orion. This angered her brother, the god Apollo, and Apollo plotted to kill Orion. One day, while Orion was swimming in the river Eridanus, Apollo and Artemis walked by. Apollo challenged Artemis to hit the target floating in the river with her bow and arrow. Not knowing that the target was Orion's head, she shot true and straight, striking Orion in the head and killing him. Seeing Orion's body wash ashore with her arrow in his head saddened Artemis, and she became angry when she realized that her brother had tricked her. In great sorrow, she placed the body of Orion in her moon chariot and carried him up to the sky. Then, finding the darkest place so that his stars would shine the brightest of all the surrounding stars, she placed him where we see him today

Two bright stars make up either end of Orion. On his right shoulder is the red giant star Betelgeuse. Betelgeuse is a huge star in comparison to our sun. At its most likely distance of 425 light years, its measured angular diameter yields a radius 630 times that of the Sun! If placed at the Sun, the star would go 55% of the way to the orbit of the planet Jupiter. The star is so large that it is the first ever actually directly imaged as a disk from Earth (by the Hubble Space Telescope). From its size and temperature, allowing for its infrared radiation, Betelgeuse shines an amazing 60,000 times brighter than our Sun. At Orion's left foot is another giant star, Rigel. Rigel ranks 7th in visual brightness, just behind Auriga's Capella. At a distance of 775 light years, it shines with the light of 40,000 Suns. It is a "blue super giant," a fairly hot star with a surface temperature of 11,000° Kelvin, about double that of our Sun. Its warmer temperature gives it a bluish-white light that contrasts beautifully with Betelgeuse.

The three stars that form Orion's belt, from left to right, are Alnitak, Alnilam and Mintaka. Hanging below these three is Orion's sword. If you look closely at his sword you may notice that the center star is a little "fuzzy." This is because the center "star" is really the Great Orion Nebula, M42, which is 1600 light years distant. This nebula is visible in binoculars as a fuzzy patch in the sky and in small telescopes it looks like a cloud. With larger telescopes, greater detail is visible. This nebula is a "stellar nursery" with lots of new young stars forming in it even today.

Many amateur astronomers, myself included, spend hours just looking at the beauty of this nebula. You feel that you can almost see it moving in your telescope.

Orion is filled with many nebulae for your viewing pleasure. The Flame, the Horsehead, the Witch's Head, and the Running Man are just a few of the famous ones. Some require special filters, others require a camera to capture, but all are stunning objects to behold. For the double star enthusiast, Eta Orionis is a challenge at 1.5 arc seconds, and if you crave even more difficult targets, try 14 Orionis at a mere 0.8 arc seconds of separation.

So brave the cold winter nights and spend some time exploring one of my favorite constellations, Orion, the hunter.

Show Your SDAA Pride...

with high-quality SDAA merchandise! Display your membership in style with SDAA t-shirts, polo shirts, and hats. What better way to keep warm on those cold nights at TDS than with an SDAA hooded sweatshirt? Be the talk of the road with a 'Look Up!' license plate frame. And be sure your fellow members know who you are by wearing an official SDAA nametag. For more information, click the merchandise link on the SDAA website at www.sdaa.org or call Diana Kelly at (858) 603-3323.

NASA's Space Place

Flying in Formation
By Patrick L. Barry

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

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

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

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

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

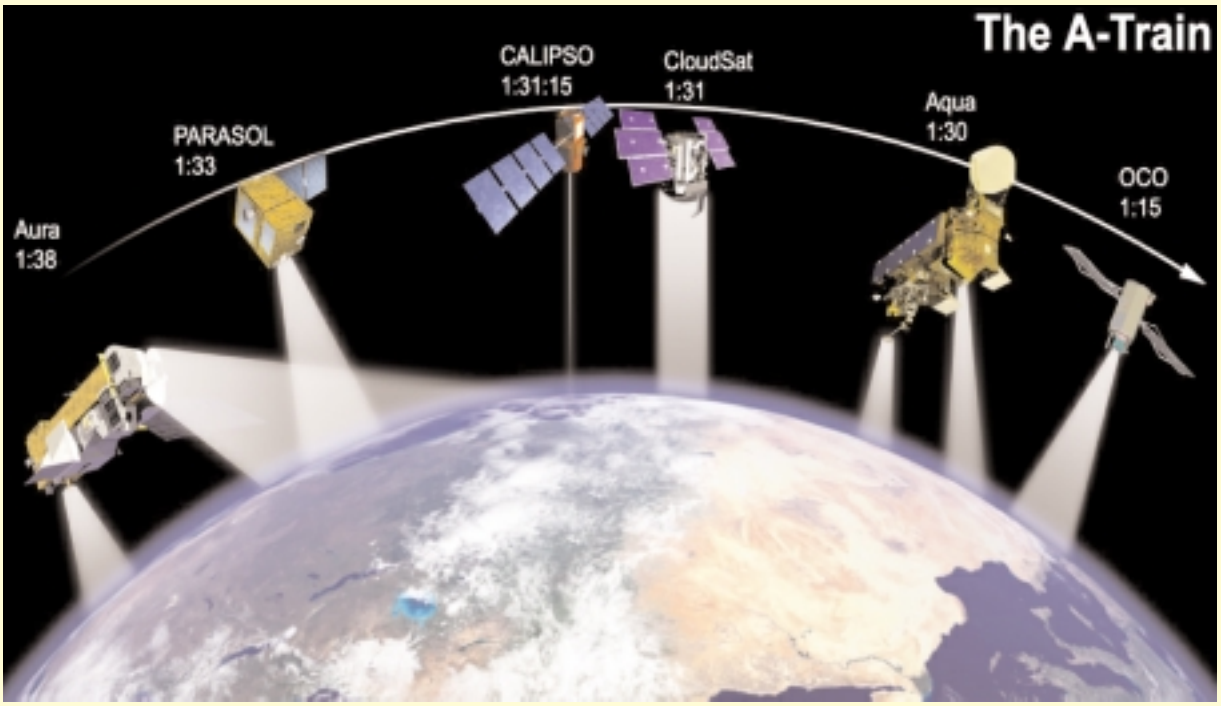
This sounder-the first of its kind put into orbit-lets scientists see a vertical "slice" of the atmosphere that shows clouds, water, and ice between the ground and 30 km altitude, with a vertical resolution of 0.5 km. Even by itself, this instrument would provide an important and unique view of Earth's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

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

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

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

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



CloudSat, to be launched in November 2004, will take its place as part of the "A-Train" of satellites flying in formation to take closely timed snapshots of essentially the same scene using a total of 14 different measuring instruments.

Program Meetings by Scott Baker

The First Program Meeting of 2004 was held on the 21st of January. Approximately 60 members and guests heard me talk on various aspects of beginning astronomy. Topics covered were sky conditions, eyepieces and collimation. Near the end of the meeting, I realized that too many topics were discussed for any one night, and I feel that I personally didn't do as good a job as I had hoped. Because of this, I'm going to do something special. Normally, the month that we hold our annual banquet, there is no program meeting held, but for the sake of the members who are just getting started, there will be a "special" meeting in February. This won't be a "regular" program meeting -- no raffle, club updates, or coffee, just me. I will be at the MTRP Visitor Center Theater on February 18th at 7:00pm to answer questions and provide guidance to new members. I don't want to see any of the "old hands" at this meeting, just new members and people with questions about astronomy, telescopes, eyepieces, etc. that I can hopefully assist. This is the least I can do after botching the January meeting. So if you came away from January's meeting feeling a little more confused then when you came in, please be there, in February, for some more one-on-one discussion.

The January Program Meeting Raffle had some great prizes, sold to us at cost by Oceanside Photo and Telescope (thanks Mike!) and a small change in the format. I found out, from a reliable source, that the raffle prize of 50% of the proceeds from ticket sales is considered gambling and is illegal, so the raffle has changed a little. We now sell tickets and 20% of the proceeds go to the club as a donation, and the remainder will be used to purchase prizes for the next month's meeting. We took in $161.00 at January's meeting, of which, $32.00 goes to the club and $129.00 will be used for the March prizes. The winners of January's raffle were Garry Mose, Brian McFarland, Michael Breaux, John Walton and Harry Gillam. Thank you for supporting the SDAA!

March's Program Meeting, on the 17th, will be "Member Photo Night"! We held this format last year, and it was very well received, enough so that it will now be an annual club meeting, much like Gadget Night. So all of you Astro-imagers out there, get busy tweaking your photos and snapping pictures, and bring them to the March Program Meeting to share with the rest of us. This sounds like something our Astro Imaging Special Interest Group should be all over. Come on guys show us your pictures! We'll have a slide projector and computer projector with CD-ROM drive available for you to display your images.

The winners of January's raffle were (l to r) Garry Mose, Brian McFarland, Michael Breaux (seated), John Walton and Harry Gillam.

Board Meeting Minutes by Diana Baker

The meeting was called to order at 7:08 pm January 13, 2004. In attendance were Scott and Diana Baker, Brian McFarland, Jerry Hilburn, Jim Traweek, Jennifer Pesqueira, Christopher Watson, Bill Griffith, and Mike Dietz.

Scott Baker chaired the meeting for an absent Brian Staples.

Last meeting's minutes were read online. A motion was made to approve the minutes; it was seconded and approved.

Jennifer Pesqueira gave the Treasurer's Report: There are 605 members; the memberships may be revamped and the dues raised due to increasing property taxes. It was decided to put this topic on next month's agenda. A motion was made to approve the Treasurer's Report; it was seconded and approved.

The Site Maintenance Report was given: Work on the water tanks is progressing slowly but it is progressing. Shawn is clearing the land and disposing of the material with his small chipper shredder. It will take a couple more weeks; his time is limited. Clearing is fairly easy, but disposal is proving difficult. Once that is complete, he will call in the gravel. As soon as the gravel is down and ready, he'll order the tanks themselves, which will be delivered right to the gravel pad. After that the actual plumbing will be arranged. Lastly; they will be filled. If all goes well the tanks could be installed in a couple more months. As for the pump house roof: no action, it hasn't caved in yet. There is also some runoff damage at TDS.

Jim Traweek gave the Observatory Report: The 22" is great, nothing new on the 30" telescope and dome. We have an opportunity to get a 20' satellite dish, which Jim Traweek will pursue.

Brian McFarland gave the Private Pad Report: There is nothing new to report.

Mike Dietz gave the Star Party Report: Rich Stroebel took over East County, and there are about 10 star parties a month.

The Library Education Report was given: The library has been moved to Mike Quinn's garage and will be moved to Scott Baker's storage site. A list of the books will be put on the SDAA web page, and Jerry Hillbburn has volunteered to be the new librarian. Jerry also offered to take the books to his office, where they can be cataloged. A possible, on-line, checkout system will be looked at by Jerry and Christopher.

Scott Baker gave the Membership Report: There are now 605 members, 15 new member packets were sent out last month, signed up for the NASA JPL Outreach Program; the program meeting for January is "Beginner's Night". February has the Banquet and March's meeting will be a member slide show.

The Newsletter Report was given: There was a printing error on page 2. Venus should have been shown in her entirety, and the caption should not have been floating over the image. See the pdf on the web site for what it should have looked like. The SDAA will most likely need a new editor in place in time to put together the May issue (mid-April). No one has contacted Julie about the plea in the newsletter, and the one person she asked was not interested in the job.

Christopher Watson gave the Website Report: Nothing new to report; the books will be listed on the web site, and it might be set up so that members can buy SDAA name tags through PayPal.

In Old Business: The Banquet is all set. There are no new replacement board members. The 50/50 at the Program Meetings will be changed so that there are more prizes. A letter was sent to Grossmont High School about refurbishing their observatory and telescopes.

In New Business: National Astronomy Day is Saturday April 24. We might ask the Fleet to do something. Educational Materials need to be printed and will be done at Kinkos. Aaron Price from AAVSO will be coming to California, and we'll look into using him as a guest speaker or try to fit him in somehow. The AISIG group might help work on the water tanks.

A motion was made to adjourn at 8:27 pm.

Fleet Announces New Astronomer

About Dr. Art Young…

For almost forty years, Dr. Arthur Young has delivered the wonder and mystery of the cosmos to thousands around the nation. Now he brings them to the Fleet!

Dr. Young received his M.A. and Ph.D. in Astronomy from Indiana University and has held positions at the Lick Observatory in Santa Cruz, High Altitude Observatory in Boulder, Colorado, and Kitt Peak Observatory in Tucson, Arizona. He is the author of dozens of professional articles in academic journals and has written a book entitled, It's Turtles All the Way Down: The Structure of Scientific Thought.

Dr. Young is currently a Professor Emeritus of Astronomy at San Diego State University where he has taught for over thirty years. He will continue with his position at SDSU while presenting live planetarium shows and new astronomy programs for the Fleet.

"I'm very excited to be working with such a prestigious institution. I'm looking forward to developing new and exciting astronomy programs for the Fleet," said Dr. Young.

Dr. Young replaces Dennis Mammana who held the position for 16 years. Mammana has moved out of the area.

Dr. Young is available as a resource in the areas of:
*General Astronomical Events
*Space Travel
*Mars exploration
*Stars, planets, meteor showers and eclipses
*Fleet-related planetarium shows and astronomy programs

Astronomical Events of Note in 2004:

May 4 Total Lunar Eclipse

June 8 Venus will transit across the sun, event occurs every 200 years

Aug. 12 Perseid Meteor Shower

Oct. 28 Total Lunar Eclipse, visible in US

Dec. 13 Geminid Meteor Shower

Note: There are other unpredictable events that may occur throughout the year and Dr. Young will be available to speak about them should the need arise.

SkyWatch for February, 2004
John Mood

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

Sat., 31 Jan. ---- PUBLIC STAR PARTY @ Tierra del Sol.
Fri., 6 Feb. ---- FULL MOON, 12:47 a.m.
Mon., 9 Feb. ---- MOON extremely close to bright (mag 2.8) double star Gamma Virginis (an occultation in Midwest & East).
Sat., 14 Feb. ---- Make out under the stars!!…..VALENTINE'S DAY & PUBLIC STAR PARTY @ Tierra del Sol.
Fri., 20 Feb. ---- NEW MOON, 1:18 a.m.
Sat., 21 Feb. ---- MEMBERS STAR PARTY @ Tierra del Sol.
Sat., 28 Feb. ---- PUBLIC STAR PARTY @ Tierra del Sol.

EVENING PLANETS:

VENUS [*] is racing from Aquarius the Water Carrier into Pisces the Fishes; looks like a fat football in scopes; try for it before it gets dark. MARS [*] crosses Aries the Ram & is now only a tiny dot in scopes. SATURN [*] is in Gemini the Twins, closest to Earth & rings wide open; THE BEST!!!! JUPITER [*] is in Leo the Lion & at its closest to Earth & thus, THE BEST!!!!

MORNING PLANETS:

None. BOO HISS!

FOR ALL OBSERVERS, BEGINNING & EXPERIENCED

Last month ("SkyWatch for January 2004"), I introduced what will be a several months' review of what I consider to be the best astronomy book ever written, BURNHAM'S CELESTIAL HANDBOOK: An Observer's Guide to the Universe Beyond the Solar System by Robert Burnham, Jr., pub. in 3 vols. (2138 pp, 750 photos, 450 diagrams & charts) way back in pre-historic 1978. In order to back up this possibly extravagant claim, I must first of all meet head-on the question of whether it's OUT-OF-DATE, esp for computerized GOTO telescopes.

Obviously, it is out-of-date on R.A. & Dec., which are given for Epoch 1950 instead of 2000. But that only matters to amateurs who use setting circles, & I never did know many of those, even before computers. I myself always used the star-hopping method, eminently practicable with a good star atlas. So check this one off.

What about magnitude estimates? Well, the method of doing such has changed considerably since the mid-'70s. Today, only variable star & comet observers "eyeball it" any more, & they're familiar with the changes. All others rely on photoelectric photometry by the pros. So again, what's the problem? Check this one off also.

Ahhh, but then there's all the "advances" in astronomical "knowledge" since Burnham wrote his masterpiece. Such as, for example, distances to clusters, nebulae & galaxies. Well, believe me, my astronomical friends, that's not a problem. Let me give a couple of examples:

1.} Burnham gives the distance to M-31, the Great Galaxy in Andromeda, according to "various lines of evidence" as 2.2 million light years. In the margins of my copy of

Burnham, I've penciled in "updates" to this figure --- 1.88 mill. l.y. in late '80s, 2.93 mill. l.y. {!!!!} by Hipparcos in '97, & 2.6 mill. l.y. in Sept '03. Well, WHO'S RIGHT??? Burnham, with his usual modest language, seems ALWAYS to be more accommodating to new discoveries than any of the magazines you & I pore over so carefully.

2.} M-67, an ancient open cluster in Cancer, is generally conceded to be the 2nd oldest of its kind known. How old? Burnham suggests "about 10 billion years." Sky&Tel last month said its age was 3.2-10 billion years old. OUT-OF-DATE? I don't think so! Especially since the more "up-to-date" info is available everywhere, in print & online. So again, check this one off as NO PROBLEM.

In other words, when it comes to observational astronomy by the amateur, Burhham's Celestial Handbook presents NO DIFFICULTIES by being a quarter of a century old, due to his modest style & carefully tentative conclusions. Having established that, what then are its advantages? They are CONSIDERABLE!

More on that next month.

TIERRA DEL SOL

LAT = 32º 36' 48" N (± 0.l"), LONG = 116º 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 e-mail address 1happyalien@cox.net.

¡HAPPY VIEWING!

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Camp with the Stars
by Mike Dietz

One weekend every month the San Diego Astronomy Association sets up telescopes at campgrounds in San Diego County for the public. There is usually a slide show presentation on astronomy preceding the public viewing. During the summer months we are in the mountains, and during late Fall through early Spring we are in the desert.

The following dates are the current schedule for 2004 and are subject to change. Any members that bring telescopes to share with the public can camp for free. You can contact me at (619)334-9930 if you will be attending so I can let you know of any last-minute changes or give you any additional details.

To reach Lake Jennings take I-8 east to Lake Jennings Park Rd. in Lakeside and turn left. Turn right onto Harritt Road. Where Harritt Rd. divides, go right to the south entrance on Bass Dr.

To reach William Heise Campground take Hwy 67 north through Ramona which turns into Hwy 78. Continue east on Hwy 78 through Santa Ysabel heading towards Julian. About a mile before Julian, turn right on to Pine Hills Rd. and head south. Continue about 2 miles to Frisius Drive and turn left. Head East on Frisius Dr. about 1 1/2 miles to the park entrance.

To reach Vallecito Stage Station take I-8 East to the Ocotillo (Hwy S-2) turnoff. Head North on Hwy S-2 about 30 miles. The campground is about 4 miles north of Agua Caliente Hot Springs on S-2 on the left. We set up at the far west side of the campground. From North County go to Julian, then go East on CA 78 through Banner until Scissor Crossing (intersection of CA78 and S-2), where you turn right (southeast) onto S-2 (a.k.a. "Great Southern Overland Stage Route of 1849"). Continue on S-2 for about 20-25 miles. The campground will be on the right.

Camp with the Stars 2004

Jan. 24	Vallecito Stage Station
Feb. 28	Vallecito Stage Station
Mar. 13	Lake Jennings - Lakeside
Apr. 10	Lake Jennings - Lakeside
May 22	Wm Heise Campground - Julian
June 19	Wm Heise Campground - Julian
July 24	Wm Heise Campground - Julian
Aug. 21	Wm Heise Campground - Julian
Sept. 18	Wm Heise Campground - Julian
Oct. 16	Vallecito Stage Station
Nov. 20	Vallecito Stage Station

Clip and Save

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SDAA Calendar of Events

February 2004

S	M	T	W	T	F	S
1	2	3	4 **Stars in the Park Balboa Park**	5 Star Party at Del Mar Hills Acad., 6:30pm	6 ○ **SDAA Banquet 6pm, Pt. Loma Masonic Ctr** Star Party at Diegueno Middle School., 6:45pm	7
8	9	10 **SDAA Board Meeting SKF 7pm**	11 Star Party at La Presa Elem., 7:00pm	12 Star Party at Spring Vly Elem., 7:000pm	13 ◑ **Stars in the Park MTRP**	14 **Star Party at TDS**
15	16	17	18 **Program Meeting MTRP 7pm**	19	20 ●	21
22	23	24 Star Party at Doyle Elem, 6:30pm	25	26 Star Party at Highland Ranch Elem, 6:45pm	27	28 ◐ **Star Party at TDS** Camp w/ the Stars Vallecito Stn
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The Back Page

The Sky Tonight
by Dr. Art Young

For February we will feature “Back to the Moon,” inspired by the recent presidential initiative. On February 4, we will present the astronomy of the moon (orbit; phases; unusual properties of its rotation; eclipses; and tides) and the geology of the moon (surface features; composition; history of its evolved surface) and a sense for what a permanent manned lunar base might provide.

View of a full Moon photographed July 21, 1969 from the Apollo 11 spacecraft during its transearth journey homeward. When this picture was taken the spacecraft was already 10,000 nautical miles from the Moon.

Photo courtesy of NASA and JSC Digital Image Collection: http://images.jsc.nasa.gov

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