

The Ephemeris

February 2014

Volume 25 Number 02 - The Official Publication of the San Jose Astronomical Association



Houge Park February Events

02 February

Solar observing: 2-4PM

Fix-It Day: 2-4PM

07 February

In-Town Star party (Houge): 7-10PM

15 February

Board of Directors Meeting: 4:30-6PM

Pot Luck / General Meeting: 6:30-9PM

21 February

Beginner Astronomy Class: 7-8PM

In-Town Star party (Houge): 7-10PM

02 March

Solar observing: 2-4PM

Fix-It Day: 2-4PM

SJAA Contacts

President:	Rob Jaworski
Vice President:	Lee Hoglan
Treasurer:	Michael Packer
Secretary:	Teruo Utsumi
Director:	Rich Neuschaefer
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Director:	Dave Ittner
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Fix-it Program:	Ed Wong
Imaging SIG:	Harsh Kaushikkar
Library:	Dave Ittner
Loaner Program:	Dave Ittner
Lunar/Planetary:	Akkana Peck
Ephemeris Newsletter -	
Editor	Sandy Mohan
Production	Tom Piller
Publicity:	Rob Jaworski
Questions:	Lee Hoglan
Quick START	Dave Ittner
Solar:	Michael Packer
School Events:	Jim Van Nuland
Speaker:	Dr. Charlie Conroy
E-mails:	http://www.sjaa.net/contact.shtml

Letter from the President

Dear SJAA Members and Friends,

As Akkana mentions in her column to the right, this is her last Shallow Sky column. Her monthly write up about what's happening in the nearby sky for the current month will be missed. I would like to take this opportunity to express the sincere gratitude of the SJAA for the many, many years of contributions to the Ephemeris. Her clear explanations and fluid writing style on what to expect when we look up to the "Shallow Sky", that close part of the universe we call our solar system, has been a welcome staple to our publication.

Akkana also provides guidance on how she produced her column, month after month, in the event someone may pick up where she leaves off. This is also a reminder that the SJAA is an all-volunteer led organization, bringing astronomy and science to the south bay community. Contributions to the Ephemeris, or blog posts, or lending views through telescopes at in-town star parties or at the school star party program are all done by volunteers in their spare time. The school program, a very popular event every time, could really use more volunteers to bring scopes out to schools during the year. But there are other ways to contribute. If you have been thinking about getting involved, giving back to the community, please contact me, or better yet, please come to the Annual Membership meeting on 15 February and let's talk. The time commitment is as little or as much as you prefer, and it's a great feeling to contribute, and it's a great group of people, too.

Respectfully,
Rob Jaworski
President, SJAA

Shallow Sky

Off Into the Deep

By Akkana Peck

This will be my last regular Shallow Sky column for the SJAA Ephemeris, because after 12 years of writing the column and some 25 years in the Bay Area, I'm moving away from streetlights and light pollution to a land of dark skies: New Mexico.

For my last column, I was asked how I go about writing this monthly planet column. Perhaps another JAA member would like to take on the job after I'm gone. So here's how a typical column goes:

First, the RASC Handbook is terrific for its list of interesting events in the sky each month. I usually start the column by going to the RASC, scanning through the month's event listing for anything worth mentioning, and converting the times (since the RASC uses Universal Time, 8 hours later than PST and 7 hours later than PST) to see whether they happen during reasonable viewing hours in San Jose.

Shallow Sky Cont. on page 2

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Shallow Sky Cont. from page 1

I also check a planetarium program. As a Linux user, I use XEphem, which has a nice "Night at a Glance" view showing all the planets so I can see what's up in the evening sky versus what's in the morning, but I'm sure most planetarium programs for any platform have something similar. That's particularly helpful for January and February columns when I don't have the new year's RASC Handbook yet, but even in other months it's useful to cross-check what I find in the RASC. Initially I set the program's date for some time around the middle of the month I'm writing about (since the column is written early in the previous month). Then I'll change the date to check specific events, and for Venus and Mercury I'll check each week since they can change quite a bit over the course of a month. That also lets me check their phases: I always enjoy seeing the inner planets as crescents, so I'm guessing other people do too. Then there's Jupiter. For instance, this month, Jupiter is perfectly placed, just past opposition and transiting between 9 and 10 pm, and it transits fairly high, at 75 degrees (I got that from XEphem). So this month will be a great time to look at Jupiter. That means it's also worth looking for multiple moon and shadow transits. Some months they're common; other months there aren't any during our nighttime hours. The RASC mentions them in the monthly summary. In months when I don't have an RASC, I use a Jupiter web app I wrote a few years back, <http://shallowsky.com/jupiter> -- it has an "animate" mode that lets you watch all four Galilean moons move around Jupiter, and if I speed it up I can cover a whole month pretty quickly. If I see several moons about to transit at the same time, I stop the animation and single-step forward and backward to get approximate times, and then double-check in my planetarium program. In truth, even with the RASC, I often use the web app anyway because it's fun to watch the high-speed animation of the moons zipping around and

around Jupiter.

The only multiple transit I found this month was on the night of Feb 5, starting around 5:45-6 pm, when Io's shadow is leaving just as Callisto is beginning its transit. Then later, after midnight, Callisto's shadow finally hits Jupiter's disk (Callisto itself is long past transit) just as Europa begins a transit. If you're up very late that night, by around 2:30 am Europa, Europa's shadow and Callisto's shadow are all visible at once.

This month most of the other planets - Saturn, Venus, Mars, and Pluto-- are in the morning sky. Mercury is low in the evening sky at the beginning of February, and over the next week it rapidly shrinks to a crescent as it sinks into the twilight. Uranus is an early evening object, but it's already low in the sky at nightfall so it'll be relatively tough to catch. (That's all from XEphem because I don't have an yet this year -- SJAA got them early but I've been too busy packing to pick one up.)

What about bigger events -- occultations, eclipses, transits and so forth? Of course, the RASC has those, but I also do a web search in December or January for important events throughout the year, saving them to a file so I have a reminder when it's time to write that month's column. Comets are harder -- most of them appear and disappear so quickly that there's nothing you can do about them in a column that's written three weeks ahead of time. In the case of comets we know about far in advance (ISON, Hale-Bopp) I set up reminders for myself as soon as I know the important dates, and try to stay abreast of what people are saying on the web about whether the comet is brightening as expected.

And then there are the other topics. I found it got a little dull writing about how Jupiter is here, Mercury is there, month after month, so I look for other shallow-sky related topics to write about each month.

Whenever I see an interesting article in the science press I make a note of it as a possible topic. And sometimes curiosity just sends me off on a hunting expedition -- like reading a note about "large tides" in the RASC and

starting to wonder how they propagate, or getting an email from someone about a Jupiter moon event and investigating it, or seeing a tweet about a moon book I hadn't heard of. And then I chase it down, mostly for my own satisfaction ... and then you all have to sit through my ramblings about it (or turn the page).

I hope some of those ramblings have been at least a bit entertaining.

Anyway, I'll miss the SJAA (though I won't miss the streetlights!)

I'll probably write occasional articles about the shallow (and maybe even deep!) sky on my blog, shallowsky.com/blog (use the tag "astronomy" if you don't want to wade through all the geeky Linux tips and bird watching and whatnot). And feel free to email if you have a question or want to chat about shallow-sky stuff, or anything else.

May you have steady skies!

Akkana

New Super Nova in M82

An exploding star has suddenly appeared in the night sky, dazzling astronomers who haven't seen a new supernova so close to our solar system in more than 20 years.

In just the last few days, a [the supernova emerged as a bright light in Messier 82](#) - also known as the Cigar Galaxy - about 12 million light-years away in the constellation Ursa Major, or the Great Bear. The supernova, which one astronomer described as a potential "Holy Grail" for scientists, was first discovered by students at the University College London.

Positioned between the Big Dipper and the Little Dipper, the new supernova should be easy for sky watchers in the Northern Hemisphere to spot; it may even brighten enough to be visible through a small pair of [binoculars](#), said astronomer Brad Tucker, of the Australian National University and the University of California, Berkeley.

The star lies within reach of a 4" telescope. It may continue to brighten over the next week or two.

Credit: Space.com

Eleven Great Astronomy Quotes



11. Astronomy compels the soul to look upwards and leads us from this world to another. - Plato

10. To confine our attention to terrestrial matters would be to limit the human spirit. - Stephen Hawking

9. I have... a terrible need... shall I say the word? ... of religion. Then I go out at night and paint the stars. - Vincent van Gogh

8. Astronomy is useful because it raises us above ourselves; it is useful because it is grand. It shows us how small is man's body, how great his mind, since his intelligence can embrace the whole of this dazzling immensity, where his body is only an obscure point, and enjoy its silent harmony. - Henri Poincare

7. We live in a changing universe and few things are changing faster than our conception of it. - Timothy Ferris

6. If there is anything that can bind the heavenly mind of man to this dreary exile of our earthly home and can reconcile us with our fate so that one can enjoy living, then it is verily the enjoyment of the mathematical sciences and astronomy. — Johannes Kepler

5. The good thing about science is that it's true whether or not you believe in it. — Neil deGrasse Tyson

4. Every atom in your body came from a star that exploded. And, the atoms in your left hand probably came from a different star than your right hand. It really is the most poetic thing I know about physics: You are all stardust. - Lawrence Krauss

3. We had the sky, up there, all speckled with stars, and we used to lay on our

backs and look up at them, and discuss about whether they was made, or only just happened.

-Mark Twain, *Huckleberry Finn*

2. It is far better to grasp the universe as it really is than to persist in delusion, however satisfying and reassuring. - Carl Sagan

1. We are all in the gutter, but some of us are looking at the stars.

- Oscar Wilde

Credit: Brian Ventruco

Weather Forecast for Super Earth - Cloudy

Scientists using NASA's Hubble Space Telescope have characterized the atmospheres of two of the most common type of planets in the Milky Way galaxy and found both may be blanketed with clouds. The planets are GJ 436b, located 36 light-years from Earth in the constellation Leo, and GJ 1214b, 40 light-years away in the constellation Ophiuchus.

Despite numerous efforts, the nature of the atmospheres surrounding these planets had eluded definitive characterization until now. The researchers described their work as an important milestone on the road to characterizing potentially habitable, Earth-like worlds beyond the solar system. Their findings appear in separate papers in the Jan. 2 issue of the journal *Nature*.

The two planets fall in the middle range in mass, between smaller, rockier planets such as Earth and larger gas giants such as Jupiter. GJ 436b is categorized as a "warm Neptune" because it is much closer to its star than frigid Neptune is to the sun. GJ 1214b is known as a "super-Earth" because of its size. Both GJ 436b and GJ

1214b can be observed transiting, or passing in front of, their parent stars. This provides an opportunity to study these planets in more detail as starlight filters

through their atmospheres.

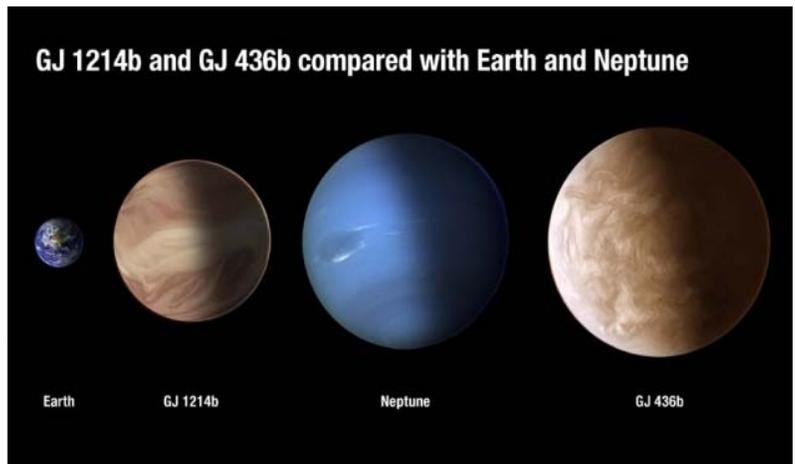
Using Hubble, astronomers led by Laura Kreidberg and Jacob Bean of the University of Chicago took a closer look at GJ 1214b. They found what they consider definitive evidence of high clouds blanketing the planet and hiding information about the composition and behavior of the lower atmosphere and surface. The new Hubble spectra also revealed no chemical fingerprints in GJ 1214b's atmosphere, but the data were so precise they could rule out cloud-free compositions of water vapor, methane, nitrogen, carbon monoxide, or carbon dioxide for the first time.



Artist's interpretation of a cloudy exoplanet; Image Credit: Courtesy Space Telescope Science Institute.

"Both planets are telling us something about the diversity of planet types that occur outside of our own solar system; in this case we are discovering we may not know them as well as we thought," said Knutson. "We'd really like to determine the size at which these planets transition from looking like mini-gas giants to something more like a water world or a rocky, scaled-up version of the Earth. Both of these observations are fundamentally trying to answer that question."

Credit : NASA



First Planet Found Around Solar Twin in Star Cluster M67

Astronomers have used ESO's HARPS planet hunter in Chile, along with other telescopes around the world, to discover three planets orbiting stars in the cluster Messier 67. Although more than one thousand planets outside the Solar System are now confirmed, only a handful have been found in star clusters. Remarkably one of these new exoplanets is orbiting a star that is a rare solar twin -- a star that is almost identical to the Sun in all respects.

Planets orbiting stars outside the Solar System are now known to be very common. These exoplanets have been found orbiting stars of widely varied ages and chemical compositions and are scattered across the sky. But, up to now, very few planets have been found inside star clusters. This is particularly odd as it is known that most stars are born in such clusters. Astronomers have wondered if there might be something different about planet formation in star clusters to explain this strange paucity.

Anna Brucalassi (Max Planck Institute for Extraterrestrial Physics, Garching, Germany), lead author of the new study, and her team wanted to find out more. "In the Messier 67 star cluster the stars are all about the same age and composition as the Sun. This makes it a perfect laboratory to study how many planets form in such a crowded environment, and whether they

form mostly around more massive or less massive stars."

The team used the HARPS planet-finding instrument on ESO's 3.6-metre telescope at the La Silla Observatory. These results were supplemented with observations from several other observatories around the world. They carefully monitored 88 selected stars in Messier 67 over a period of six years to look for the tiny telltale motions of the stars towards and away from Earth that reveal the presence of orbiting planets.

This cluster lies about 2500 light-years away in the constellation of Cancer (The Crab) and contains about 500 stars. Many of the cluster stars are fainter than those normally targeted for exoplanet searches and trying to detect the weak signal from possible planets pushed HARPS to the limit. Three planets were discovered, two orbiting stars similar to the Sun and one orbiting a more massive and evolved red giant star. The first two planets both have about one third the mass of Jupiter and orbit their host stars in seven and five days respectively. The third planet takes 122 days to orbit its host and is more massive than Jupiter.

The first of these planets proved to be orbiting a remarkable star -- it is one of the most similar solar twins identified so far and is almost identical to the Sun. It is the first solar twin in a cluster that has been found to have a planet.

Two of the three planets are "hot Jupiters" -- planets comparable to Jupiter in size, but

much closer to their parent stars and hence much hotter. All three are closer to their host stars than the habitable zone where liquid water could exist.

"These new results show that planets in open star clusters are about as common as they are around isolated stars -- but they are not easy to detect," adds Luca Pasquini (ESO, Garching, Germany), co-author of the new paper. "The new results are in contrast to earlier work that failed to find cluster planets, but agrees with some other more recent observations. We are continuing to observe this cluster to find how stars with and without planets differ in mass and chemical makeup.



This artist's impression shows one of the three newly discovered planets in the star cluster Messier 67. In this cluster the stars are all about the same age and composition as the Sun. This makes it a perfect laboratory to study how many planets form in such a crowded environment. Very few planets in clusters are known and this one has the additional distinction of orbiting a solar twin -- a star that is almost identical to the Sun in all respects. (Credit: ESO/L. Calçada)

Credit: Science Daily

One Way Ticket to Mars

Last summer, more than 200,000 people applied for a one-way ticket to Mars. This week, 1,058 of them were selected to move on to the next round.

The applications - all in video form - were not sent to [NASA](#), or another national space agency, but to a nonprofit organization called Mars One. Based in the Netherlands, Mars One has the unusual goal of turning the colonization of Mars into a reality show with a global audience. (You can see illustrations of the potential Mars One colony in the gallery above.)

In this first narrowing down of future Mars colonizers, the Mars One team focused on choosing people who were physically and mentally capable of becoming human ambassadors to Mars, Bas Landsorp, co-founder of Mars One, said in a statement.

Those who were taking the mission less seriously were excluded. The pool of selected applicants includes 472 women and 586 men. More than half of them are under the age of 35, but 26 are over the age of 56. The oldest applicant to move on to the next round is 81.



The contenders hail from 107 countries. The United States is the most heavily represented, with 297 applicants moving on to round two. Canada had the second biggest showing with 75 applicants.

Over the next two years, the hopefuls will continue to be whittled down as they are put through a series of physical and emotional tests, as well as "rigorous simulations," said Norbert Kraft, chief medical officer for Mars One.

Exactly what those tests will consist of, and when they will occur, is still up in the air. "Details of the 2014 selection phase have not been agreed upon due to ongoing negotiations with media companies for the rights to televise the selection process," the organization said in a [statement](#).

Over the next four years,

Mars One wants to get the applicant group down to about 40. Those selected will train in groups for seven years. And if everything goes according to plan, at that time a global audience will vote on which team will go to Mars in 2025.

Credit: LA Times, Dec 31 2013



John Dobson, famous as the creator of the simple, low-cost Dobsonian telescope, passed away on Jan. 15, 2014. His obituary appeared on the website of the [Sidewalk Astronomers](#):

"It is with heavy hearts that we must report the passing of John Dobson. He died peacefully this morning, Wednesday, January 15th, in Burbank, California. He was 98 years old. He leaves behind a son, numerous close friends, and fans and admirers worldwide.

On March 8th, in honor of John, this year's ISAN (International Sidewalk Astronomy Night) will be dedicated to his memory. Amateur astronomers around the globe can join in and celebrate John's life and continue to carry the torch that he lit back in 1968 when he co-founded the San Francisco Sidewalk Astronomers." Dobson was born in Beijing, China but moved with his parents to San Francisco in 1927. After spending 23 years in a monastery, some of which time was spent sneaking out to build telescopes and observe the night sky, he left to co-found the [San Francisco Sidewalk Astronomers](#) in 1968, a group dedicated to showing people on the street the wonders of the night sky using large (for the time) telescopes.

Dobson's interest in astronomy started in the early 1950s when he built a small telescope using spare parts found in a junk store. He wanted to see for himself what the universe looked like. By 1956, John got a hold of a 12-inch slab of porthole glass and ground it into a mirror following instructions from Allyn J. Thompson's classic book [Making Your Own Telescope](#). His first look at the last quarter turned him into an astro-evangelist:

"It looks like you're coming in for a land-

ing," he wrote in his own telescope making book many years later. From that moment on Dobson felt "that everybody who lives in this world has to see that." Toting beat-up, monster telescopes everywhere from downtown San Francisco and to national parks across the country, Dobson made good on his promise. He lectured widely on astronomy and cosmology, rejecting the [Big Bang Theory](#) for his own [Recycling Steady State Theory](#).

Agree or not with his cosmology, Dobson shook up the amateur telescope making universe with an innovative telescope design based on simplicity. Most telescopes of his day were small refracting telescopes or small to modest-sized reflectors with metal tubes and heavy equatorial mounts. Neither was exactly user-friendly nor offered much light gathering ability.

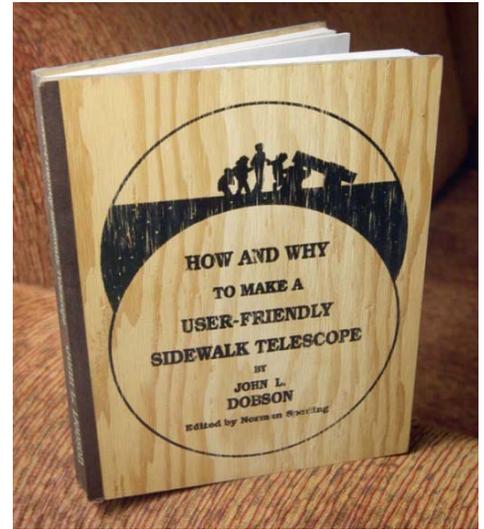
The mount is a simple altitude-azimuth or "alt-az" design. The scope moves up and down (altitude) against teflon pegs (right) and turns through in a circle (azimuth) on teflon pads against a laminate surface on the base. Credit: Bob King

John used simple materials like porthole glass, cardboard tubes and wooden altitude-azimuth (alt-az) mounts to build incredibly easy to use large telescopes. However primitive, his instruments delivered bright and satisfying images of all the cool, faint stuff in the sky to the average Joe and Jane. Each telescope had its own name: *Little Bertha*, *Delphinium*, *Stellatope*, *Little One* (an 18-incher). While alt-az mounts were nothing new, Dobson combined cheap materials, large mirrors and a simpler approach to mountings that made his telescope style unique. Too unique for some.

Get to know John Dobson a little better in this video titled "Have Telescopes, Will Travel"

In the summer of 1969 Dobson pitched his simple ideas to Sky and Telescope magazine. Then-editor Charles Federer wrote back a polite rejection, stating that Dobson's techniques weren't up to standards and "could hardly lead to satisfactory instruments in the kind most amateurs want in these large sizes."

How wrong this early assessment would turn out to be! His ideas became widely adopted starting in the early 1980s, when [Coulter Optical](#) began manufacturing 13.1-inch and 17.5-inch large reflecting telescopes with inexpensive mir-



rors and simple alt-azimuth mounts that soon were called "Dobsonian" because they were based on John's original designs.

John Dobson's book on how to build your own telescope featured a unique cover made of plywood, a favorite material for building Dobsonian mounts. Credit: Bob King

These days, Dobsonian reflecting telescopes have gone viral. There are how-to books on how to build everything from simple to sophisticated Dobsonians, including Dobson's own unique plywood-bound *How and Why to Make a User-Friendly Sidewalk Telescope*. Don't want to build one yourself? Most telescope outlets sell several lines of Dobsonians.

Heck, my 10-inch and 15-inch reflectors, the most used of my instruments, originate from John's genius.

Credit: Universe Today



An Interview with John Dobson

Why are you sometimes called the ‘MacGyver of astronomy’?

MacGyver [from the American TV series] always finds himself in a pickle and he finds a way out of it with what’s available to him. So people call me the ‘MacGyver of astronomy’ because I make telescopes out of what’s available. I use cardboard tubes made for pouring cement columns as telescope tubes, and I make mirrors from porthole glass – I’ve got 4.5 tons of ship windows. This is junk! So MacGyver means to make-do – I’m a make-do astronomer.

What originally motivated you to build your own telescope?

I wanted to see what the Universe looked like and I had only used a little refractor before I built my own. So I built a 12-inch Dobsonian, which was about 7.5ft long – now that’s a good size for a telescope and you can see just about everything with it.

Is it true you built it in a monastery?

Yes, when I was a monk [in the Vedanta Monastery in San Francisco] a friend told me you could grind your own glass. I said “you’re nuts”, I didn’t believe him, but he showed me you really could. A friend of ours had a sheet of glass on his kitchen table and we decided to make a mirror with it. We needed another piece of glass to grind it against, which we got from a marine salvage shop down the street for \$5.

How did you come up with the design for the Dobsonian telescope?

The telescopes that people were using were tiny ones set up for photography. When you’re doing photography you need to track objects across the sky, and so you need a motor. I wasn’t interested in photography; I’ve never had a camera in my life. So I just made a telescope that moved up and down, and left and right. I just wanted to be able to see the sky and aim it anywhere above the horizon. You can run a bigger telescope without all of the machinery needed for photography; if you had all that machinery on a 12-incher it would be an observatory.

Why do you think no-one thought of the Dobsonian design before you?

They were too busy taking pictures. Their telescopes were so tiny that they weren’t very good for seeing galaxies with their own eyes, so they took pictures and looked at them in the daytime. In the daytime they can see them with their cone cells [cells in the eye that function best in bright light]. Now that’s cheating – nobody ever saw a galaxy with his cone cells, you see them with your rod cells [responsible for night vision]. If I want a picture I buy it from an observatory.

Was your telescope-making encouraged within the monastery?

No, because it wasn’t part of our curriculum. When I was in Sacramento building a retreat, I even came up with a code to talk to my friends at the main monastery in San Francisco about it. A telescope was called a geranium, and if it was a

12-inch telescope you would say you had a 12-inch geranium. If you said it had been potted, it meant the telescope had been put in the tube and in the rocker. If it had been aluminized or silvered, it was said to be in bloom. So if I said I’ve got a 12-inch, potted geranium in bloom, they knew I had a finished telescope.

Why did you leave the monastery in 1967 after 23 years of being a monk?

I was asked to leave the monastery, and that whole thing was an accident. I was weeding plants next to the monastery wall and a man was asked to look for me. He couldn’t find me and so he reported that I was missing, but I wasn’t. So I was asked to leave.

How did the Dobsonian become commercially successful?

Jim Braginton, who ran Coulter Optics, looked through a 24-incher on the top of a mountain in California, and thought ‘if he can do it, I can do it’. He started selling Dobsonian telescopes, and modelled them on my 24-incher. I don’t get royalties or anything like that, but he always treated me very well.

How did The Sidewalk Astronomers come about?

There was a nine-year-old boy who made a telescope with me. It was a big telescope, 7.5ft long with a 10.5-inch diameter mirror. His mother called me and said he needed someone to talk to about astronomy and telescope making, as the San Francisco astronomy club wouldn’t let him join until he was 14. He was five years too young to join the club, even though he had a bigger telescope than they did. So we talked it over and decided that we should start a club, and that’s how The Sidewalk Astronomers was started. To begin with there were only three members, and we got two telescopes out on the sidewalk every clear night. It was known all over the San Francisco Bay area that if you wanted to look through a telescope, you went to Jackson and Broderick streets on a clear night. The Sidewalk Astronomers has grown a lot bigger since then.

Why did you bring astronomy to the streets?

The public needs to know where they were born. People think they were born in the city, but they were actually born in the Universe. Most people have never even seen the Moon through a telescope and they are shocked when they see it so close up.

What do you think about theories of how the Universe was created?

I’m allergic to the Big Bang theory. They get the whole Universe from nothing – how likely is that? The Big Bang people have all kinds of trouble with their model, and so they change the physics to clean it up – ‘oh there’s dark matter’. And then they see the expansion of the Universe seems to be speeding up and so they invent dark energy to explain that. These are just inventions to patch the model.

Credit : 2006 *BBC Sky at Night Magazine*.



Kid Spot Jokes:

- **Where is the best place to park your space ship?**
A parking meteor.
- **How do you know when Saturn took a bath?**
He always leaves a ring in the tub.

Kid Spot Quiz:

1. **Which planet is known as the "planet of Oceans"?**
2. **How long does it take for the Earth to go around the Sun?**

Kid Spot Night Sky Challenge: February 2014

See if you can spot the following objects in the sky:

- ⇒ The Great Andromeda Galaxy (also known as M31)
- ⇒ Cassiopeia, the Queen (flattened letter M)
- ⇒ Sirius (below Orion)
- ⇒ Betelgeuse (in the Orion)

<http://skyandtelescope.com/observing/ataglance>



M31 Andromeda Galaxy
Photo: Piller

Constellations

Orion — The Hunter

Orion is a prominent constellation located on the celestial equator and visible throughout the world. It is one of the most conspicuous and recognizable constellations in the night sky. It was named after Orion, a hunter in Greek mythology. Its brightest stars are Rigel (Beta Orionis) and Betelgeuse (Alpha Orionis), a blue-white and a red supergiant respectively. Many of the other brighter stars in the constellation are hot, blue supergiant stars. The three stars in the middle of the constellation form an asterism known as Orion's belt. The Orion Nebula (M42) is located south of Orion's belt.

Orion's current name derives from Greek mythology, in which Orion was a gigantic, supernaturally strong hunter of ancient times, born to Euryale, a nymph, and Poseidon (Neptune), god of the sea in the Greco-Roman tradition.

One myth recounts Gaia's rage at Orion, who dared to say that he would kill every animal on the planet. The angry goddess tried to dispatch Orion with a scorpion. This is given as the reason that the constellations of Scorpius and Orion are never in the sky at the same time. However, Ophiuchus, the Serpent

Bearer, revived Orion with an antidote. This is said to be the reason that the constellation of Ophiuchus stands midway between the Scorpion and the Hunter in the sky.

In ancient Egypt, the constellation of Orion represented Osiris, who, after being killed by his evil brother Set, was revived by his wife Isis to live immortal among the stars.

The Babylonian star catalogues of the Late Bronze Age name Orion *SIPA.ZI.AN.NA*, "The Heavenly Shepherd" or "True Shepherd of Anu" - Anu being the chief god of the heavenly realms.

In medieval Muslim astronomy, Orion was known as *al-jabbar* "the giant".

In China, Orion was one of the 28 lunar mansions *Sieu (Xiu)* (宿). It is known as *Shen* (參), literally meaning "three", for the stars of Orion's Belt. The Seri people of northwestern Mexico call the three stars in the belt of Orion *Hapj* (a name denoting a hunter) which consists of three stars.

Source: Wikipedia

Kid Spot Quiz Answers:

- 1) The Earth
- 2) One Year

Solar Observing Sunday, January 5th **Two Thumbs Up!**

by Michael Packer

Observe The Sun Safely!

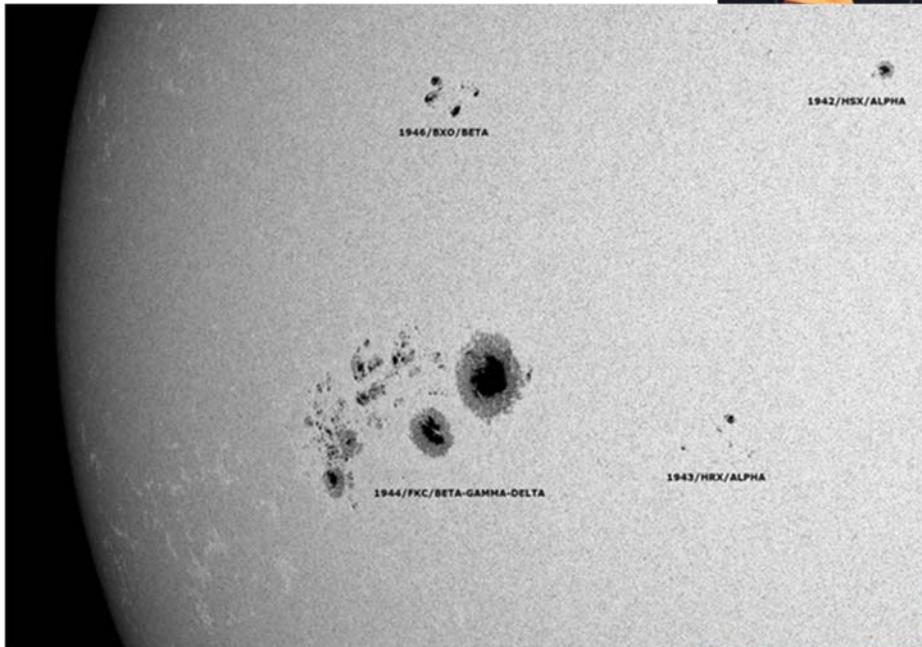
Never look at the Sun without a proper filter!

Solar Programs are held 1st Sunday of every Month 2:00-4:00 PM at Houge Park weather permitting.

Thanks to Terry Kahl, Bill O'Neil, and Teruo Utsumi for setting up gear. It was also nice to meet up with folks from The Villages Astronomy Club, recent member Ashref, also Mark Farley, Mikhail, Alena and the some 50 plus public/astro folks who stopped by.



SJAA and Public checking out the Sun.



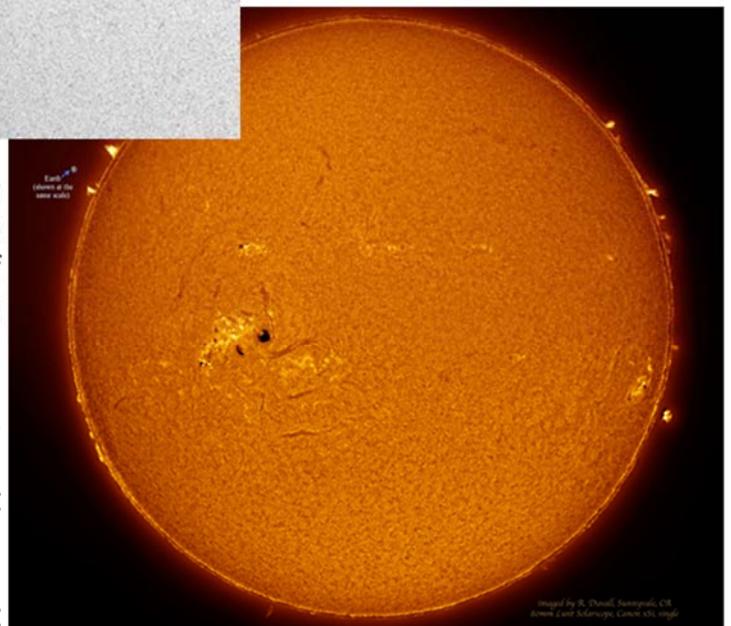
About Michael Packer

Astronomical observer for 20 years and optical engineer. Michael designs non-imaging prism and reflector optics for commercial, medical and high-end retail lighting.

There was a huge Sunspot on El Sol this Sunday visible with just a pair of Solar Glasses. Under the telescope it was exposed as a huge network of spots around 2 massive spots – each showing intricate penumbral detail.

Prominences or H-Alpha flares emanating from this region can be seen in the image as filaments or cloudy looking wisps.

This Sunspot group is the origin of the recent flare reports or CME (Coronal Mass Ejection) reports that have made the news. H-Alpha View did not disappoint as seen here by pic from Robert Duvall. Look at the huge vortex flow around the largest sunspot.



Two thumbs up indeed! Clear Mag -26.74 New Year Skies.

Notices

- ◇ **Advanced Loaner Telescope Program**
- ◇ **Quick START Program Report**
- ◇ **SJAA Library**

From Dave Ittner

The Loaner telescopes, Quick START and SJAA library programs are all back up and running. I am pleased to announce that Sukhada Palav is the new Club Librarian.

Observers Handbook

The RASC Handbooks are available for sale, \$25 each. From the RASC's website, "The Observer's Handbook is a 352-page guide published annually since 1907 by The Royal Astronomical Society of Canada."

<http://www.rasc.ca/observers-handbook>

Quantities are limited, be sure to get yours today, or at the next Fix-It session; February 2, 2014.

Fix-It Program

From Ed Wong

If you plan on bringing something to the FixIt session inside Building 1, though it's not required, we ask that you check out the FixIt page on the SJAA website and fill out the form so we know what to expect. Here's where to find it all:

<http://www.sjaa.net/fixit>

General Notices

From the Board of Directors

- The annual meeting for Board elections will be held February 15, 2014.
- Qualified candidates for Board election will be voted for at the annual membership meeting February 15, 2014 which starts at 6:30pm after the Board Meeting.

There will be a Potluck dinner first followed by voting and awards.

- Board positions to be determined this February 2014:
Rob Jaworski
Greg Claytor
Dave Ittner
open board seat

Announcements

From the Board of Directors

- There is currently one (1) board seat open that needs to be filled. See Lee Hoglan or any board member if you are interested.
- Swap Meet cancelled. Subsequent to the Dec 2013 board meeting the decision was made to cancel the Swap Meet because Club facility renovations pushed the date too close to the annual Club Auction scheduled for March 16th.

Board Meeting January 11, 2014 Excerpts

In attendance

Rob Jaworski, Lee Hoglan, Ed Wong, Greg Claytor, Dave Ittner, Rich Neuschaefer, Michael Packer, Teruo Utsumi

Recognition Program

Greg Claytor will hand out the recognition awards at the February annual membership meeting.

Website forum

Rob Jaworski and Mike Packer (sjaa club website developers) have added forum capability to be used to hold online discussions on various threads on board related topics. The forum, presently in very basic form, is slated to be opened to general membership in the future after the bugs are worked out.

Beginner Class

A twelve month curriculum for the Beginner Class is under discussion. Rob Jaworski and Teruo Utsumi will head up the effort to develop curriculum/outlines and seek possible presenters.

Ephemeris

Sandy Mohan and Tom Piller were approved as Editor and Production Manager of the Ephemeris publication.

Auction

Preparations for the annual auction were discussed. Jay Freeman is to be the auctioneer, all Board Members plan to participate.

Astro Camping at Pinnacles

Ed Wong is investigating a Club organized astro-camping event at the Pinnacles. Group campsites are \$75 per site, 10 people per site.

Lick Observatory

Lee Hoglan and Ed Wong are pursuing a guest speaker for a short presentation during the February General Meeting.

Dark Sky Events Feb - Mar 2014

01 February

Mendoza Ranch: 6-11PM
Henry Coe State Park: open

22 February

Star Party; RCDO: 7-9PM

01 March

Half Messier Marathon - Mendoza Ranch: 6-??AM
Henry Coe State Park: open

22 March

Star Party; RCDO: 8:30-10:30PM

SJAA Ephemeris newsletter of the San Jose Astronomical Association, is published monthly

Articles for publication should be submitted by the 20th of the previous month.

San Jose Astronomical Association
P.O. Box 28243

San Jose, CA 95159-8243

<http://www.sjaa.net/contact>

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New **Renewal** (Name only if no corrections)

I prefer to get the Ephemeris newsletter in print form (Add \$10 to the dues listed on the left). The newsletter is always available online at:

Membership Type:

<http://www.sjaa.net/sjaa-newsletter-ephemeris/>

Regular — \$20

Regular with Sky & Telescope — \$53

Junior (under 18) — \$10

Junior with Sky & Telescope — \$43

Questions? Send e-mail to
sjaamemberships@gmail.com

Subscribing to Sky & Telescope magazine through the SJAA saves you \$5 off the regular rate. (S&T will not accept multi-year subscriptions through the club program. Allow 2 months lead time.)

Bring this form to any SJAA Meeting or send to the address (above). Make checks payable to "SJAA", or join/renew at <http://www.sjaa.net/join-the-sjaa/>

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