

SJAA EPHEMERIS

January General Meeting

The Mimbres' Plate: The Moon, and The Supernova of 1054

January 14, 2005 at 8 p.m.

On July 4, 1054 until about April 26, 1056, a remarkable celestial event was observed and recorded for posterity by Chinese and Japanese observers – the appearance of a temporary star in the constellation today we know as Taurus. Nearly 700 years later, something else was discovered in the same location of that short-term visitor by a British amateur

astronomer; a faint fuzzy object that became item number 1 on Charles Messier's famous list of 'non-comets.' Over the centuries, astronomers have been studying this mysterious space cloud, with more and more information accumulating as to just what it is, what it's made of, and where we think it's going.

Join fellow SJAA member Bob Garfinkle (and a Fellow of the Royal Astronomical Society) as he delights again us with another of his fascinating and informative talks at our January 14, 2006 general meeting. Bob will describe to us who else may have also observed the supernova of 1054, how Messier came to discover the remnant of that explosion, who actually discovered it

SJAA Activities Calendar

Jim Van Nuland

January

- 6** Houge Park star party. Sunset 5:05 p.m., 56% moon sets 1:01 a.m. Star party hours: 7:00 to 10:00.
- 7** ATM class at Houge Park. 7:30 p.m.
- 14** **General meeting** at Houge Park. 8 p.m. Bob Garfinkle will speak on the Supernova of 1054.
- 19** ATM class at Houge Park. 7:30 p.m.
- 20** Houge Park star party. Sunset 5:19 p.m., 63% moon rise 11:27 p.m. Star party hours: 7:00 to 10:00
- 20** Astronomy Class at Houge Park. 7:30 p.m. Rob Hawley on Care and Feeding of Dobsonian Telescopes (part 1)
- 21** Dark sky weekend. Sunset 5:20 p.m., 53% moon rises 0:27 a.m
- 28** Dark sky weekend. Sunset 5:28 p.m., 0% moon rise 7:40 a.m.

February

- 3** Houge Park star party. Sunset 5:35 p.m., 40% moon sets 11:59 p.m. Star party hours: 7:00 –10:00 p.m.
- 4** ATM Class at Houge Park. 7:30 p.m.
- 11** **General meeting** at Houge Park. 8 p.m. Dr. Jeff Moore of NASA will be speaking.
- 16** ATM Class at Houge Park. 7:30 p.m.
- 17** Houge Park star party. Sunset 5:50 p.m., 78% moon rises 10:18 p.m. Star party hours: 7:00 – 10:00 p.m.
- 17** Astronomy Class at Houge Park. 7:30 p.m. Rob Hawley on Care and Feeding of Dobsonian Telescopes (part 2)
- 18** Dark sky weekend. Sunset 5:51 p.m., 70% moon rises 11:20 p.m.
- 25** Dark sky weekend. Sunset 5:58 p.m., 4% moon rise 6:10 a.m.

The Board of Directors meets at 6:00 p.m. preceding each general meeting. All are welcome.



before he did, and many other fascinating facts and figures about: The Crab Nebula.

Bob is the author of "Star-Hopping: Your Visa to Viewing the Universe" and a co-author of "Advanced Skywatching." If you have copies of Bob's books and would like him to autograph them for you, be sure to bring them to the meeting.

24 hour news and information hotline: (408) 559-1221

<http://www.sjaa.net>

PLANETS FOR POETS

An Astronomy Course at Foothill College

January through March 2006

Andrew Fraknoi

With intriguing new objects being discovered around and beyond Pluto, with wonderful new pictures and information coming from Mars, and with more than 150 planets now known around other stars (some too weird for words), this winter quarter might be the perfect time to take an introduction to the planets.

Foothill College is offering Astronomy 10A, the "Planets for Poets" course both in the evening and during the day, and anyone interested in the latest discoveries and ideas about other worlds is invited to enroll. No background in science or math is required, and the instructor, Andrew Fraknoi, specializes in explaining scientific ideas in everyday language.

The winter quarter starts Jan 9 and ends March 29.

The Astronomy 10A course is offered:

- * Tuesday and Thursday evenings from 6 to 8:25 pm
- * Monday, Tuesday, and Thursday from 12 noon to 1:25 pm

Registration begins December 12th.

To enroll, go to the Foothill web site:

<http://www.foothill.edu>

and click on "Apply and Register" in the top menu.

For more on the astronomy program at Foothill, see:

<http://www.foothill.edu/ast/>

Among the questions answered in Astronomy 10A are:

- * What cosmic threat killed the dinosaurs and could it kill us?
- * Have we found a tenth planet?
- * Is Pluto a real planet or just a dirty ice ball?
- * Was there once enough water on Mars for life to start?
- * What are the ten greatest tourist sights in the solar system?
- * Is our family of planets usual or exceptional?
- * What are the rings of Saturn made of?
- * Why a trip to Venus would be a once-in-a-lifetime experience
- * Where could humans live if we really mess up the Earth?
- * How can we look for intelligent life among the stars?

Dobson Workshop at Jan/Feb Astronomy Class

Rob Hawley

In November many members asked questions on how best to use their Dobsonian / Newtonian Telescopes. I compiled the questions I received and will use the January and February Beginning Astronomy Classes to answer them. Both are at 7:30 PM at Houge Park. The current agenda for the two nights is:

January 20 - Set up Issues

All about Collimation

Techniques

Tools

Hands on Practice

Maintaining your Scope

Cleaning the Optics

Dealing with Dew

February 17 - Using your scope

Filters and how to best use them

Star Charts - Paper and PC

Planning your Evening

Where to go

Weather

Object Catalogues

Recommendation lists

How to Find Stuff

Keeping Records

If there are additional topics let me know at robhawley@earthlink.net. In particular it would make sense to add a section on quick polar alignment if anyone is using a Newtonian mounted on an Equatorial mount.

There is little in the February session that will be specific to Dobsonians so if you have a different type of manual scope this may be interesting to you.

Rays of Light in the Dead of Winter

Akkana Peck

Mars has moved into Aries and is high in the sky at sunset and visible through most of the prime observing hours. It's quite a bit smaller now -- 12" as the year opens, shrinking to under 10" by month's end, about half the size it showed a few months ago at opposition. It will also be noticeably gibbous: it'll be easy to see the shadow along one edge instead of the full disk of the planet. But there's still plenty of detail to be seen, so don a warm jacket and don't give up on Mars quite yet.

Saturn reaches opposition on January 27th. It's observable all evening and shows a ring tilt of about 18 degrees. That's considerably less than last year: Saturn's rings are gradually closing, year by year as viewed from our vantage point, and by 2009 we will see them edge on.

But that's not for years. This year, for the next few months you can enjoy all the usual features of Saturn's ring system: the two bright rings, designated as A and B (the A ring is the outer one), with the dark Cassini division separating them; the dim grey C ring (also called the "Crepe ring") inside the A ring and closer to the planet; and, for sharp eyed observers on very steady nights, the slim dark gap near the outer edge of the A ring, sometimes called the Encke gap (though it was observed by several people prior to Encke).

And don't forget about its moons: most telescopes will show anywhere from four to six of them, and larger telescopes might show seven. We've been learning a great deal about Saturn's moons over the past year, thanks to the wonderful images sent back from the Cassini spacecraft; don't forget to take a look at them yourself

the next time you're observing the ringed planet.

Venus and Mercury are both too close to the sun to observe most of January, though sharp-eyed observers might catch the pair just after sunset at the very beginning of the month. Venus reaches inferior conjunction (it's between us and the sun) on the 13th, while Mercury is at superior conjunction (the other side of the sun) on the 26th.

Jupiter is mostly a morning object, rising at a few hours past midnight. Of course, its bands and moons are wonderful at any hour.

Uranus, Neptune, and Pluto are all too close to the sun for good observing this month.

Starting at about 6pm on the 9th, the

The Stardust spacecraft returns on January 15. "Cross your fingers for a soft landing!"

gibbous moon passes through the Pleiades. Alas, it won't occult the brightest stars of the cluster, but it will pass over plenty of faint stars, and should be a sight well worth catching.

On January 15, the Stardust probe comes home to earth. Dr. Scott Sandford of NASA Ames has spoken at a couple of past SJAA meetings to tell us about this very interesting project, which a year ago this month successfully collected dust from the tail of comet Wild 2 (pronounced "Vilt 2"). Now Stardust is bringing those bits of comet tail back down to earth so they can be analyzed to see what they tell us about the origin of our solar system.

Stardust's sample return capsule will parachute down to a landing in Utah's Great Salt Lake desert at about 3:15 am. Cross your fingers for a soft landing!

Finally, the Earth reaches perihelion on January 4th: in other words, that's when our almost, but not quite, circular orbit brings us closest to the sun.

Closest? In the dead of winter?

Indeed. You probably already know that our seasons aren't caused by closeness to the sun: they're caused by the 23-degree tilt of the Earth's axis. (You'll see that 23-degree angle on star maps as the angle between the equator and the ecliptic.) Right now, during our Earth's northern hemisphere is tilted away from the sun, so the sun's rays strike us at an angle, instead of from nearly overhead as they do in summer. This means we receive much less light and heat in winter than in summer, even though we're about three million miles closer to the sun.

Does this mean that southern hemisphere seasons are more extreme than ours, since in the southern hemisphere, it's midsummer when we reach perihelion?

Well, sort of. But the southern hemisphere has a lot more ocean than the northern hemisphere. All that water is more resistant than land to temperature changes (that's the reason that coastal areas like our own tend to be milder in climate than inland areas). So the percentage of ocean tends to offset the effect of perihelion and aphelion (the time when we're farthest from the sun), and the result is that there isn't very much difference between the severity of the seasons in Earth's northern and southern hemispheres.

Observe the Stardust Re-entry

Mike Koop

On January 15, 2006 at 1:56 PST, after more than 7 years and billions of miles of travel through space, the Stardust spacecraft will finally return to Earth with some precious cargo — pristine samples of comet Wild 2 and interstellar dust. The spacecraft will reenter over the Pacific Northwest and will land in the Utah Test and Training Range (UTTR) within the Great Salt Lake Desert. The mini Apollo-like capsule will enter the earth's atmosphere with the highest spacecraft re-entry speed ever, generating extremely high temperatures and ablating just like a meteor! To take advantage of this "scheduled meteor", NASA will be flying the DC-8 with meteor scientists (and a SJAA President) to study how the capsule reacts with the Earth's atmosphere. Your President will be operating an Echelle Spectrograph, attempting to collect spectra of shock layer radiation of the re-entry. The DC-8 will be flying in a loop just outside the test range to maximize our viewing time.

The Re-Entry will be visible thru the western states. The capsule is predicted to reach a peak magnitude of -7, but the brightness is dependent on the distance from the capsule and the viewing angle. The capsule is brightest on its leading edge, and will quickly dim as it passes you since the capsule itself will eclipse the heat shield. From here in San Jose, the max altitude will only be 12 degrees above the horizon, and visible only for the beginning of the re-entry, before it reaches peak brightness. You will need to get high in the Diablo range with a clear Northern horizon to have any chance to view it during these winter months. To have a better view, you need to go further to the northeast. The best opportunities for viewing the re-entry will be along Highway 80 between Carlin, Nev., and Elko, Nev., and further east to the Utah border, where the capsule's front side can be observed before it passes over the observer on the ground. It is also possible to position yourself so that the capsule will pass in front of the moon! Amateur astronomers are encouraged to submit photographic, video or other data. Check <http://reentry.arc.nasa.gov> for more information and the SJAA website for star field plots.



This graphic shows the maximum elevation for viewing the Stardust reentry. The background map is supplied by Google maps. Other information from Marek Kozubal and Ron Dantowitz from Clay Center Observatory.

Michael Detweiler, 1942 - 2005

Michael Burnside Detweiler died December 3 at 1:30 am after a long battle with prostate cancer.

The funeral was performed privately, with burial in Mission City Memorial Park, in Santa Clara, California.

Born February 2, 1942, Mike was a serious boy chemist already in high school, doing far more than the usual Gilbert Chemistry Set that was so popular back then.

He graduated from Santa Clara University with degrees in chemistry and physics. He described himself as a synthetic analytical chemist.

While working for SmithKline Instruments, he developed an improved hemocult test, which has saved many lives by providing a reliable test for early colon cancer.

Later work with rocket propellants contributed to the present-day spacecraft steering systems.

Most recently he was a tutor who did not merely help his students pass their math, chemistry, physics tests, but far more importantly, showed them that this is really exciting stuff -- surely leading to careers in the sciences for some number of them.

Michael also had a lifelong interest in astronomy, and was for many years a member of the San Jose Astronomical Association. Though he did not have a telescope, he was especially welcome at public activities, due to his ability to explain things simply and clearly. For several years he was assistant director of the Ricard Observatory on the campus of Santa Clara University.

He was also a skilled pianist, specializing in Chopin's music. Though he did not read music, he played all the Chopin waltzes, and an ever-increasing number of the mazurkas and nocturnes.

Diagnosed with an aggressive form of prostate cancer about 2 years ago, he used up the arsenal of possible treatments, giving him additional time, but early Saturday morning, his time ran out.

– Provided by Jim Van Nuland



A New View of the Andromeda Galaxy

Dr. Tony Phillips and Patrick L. Barry

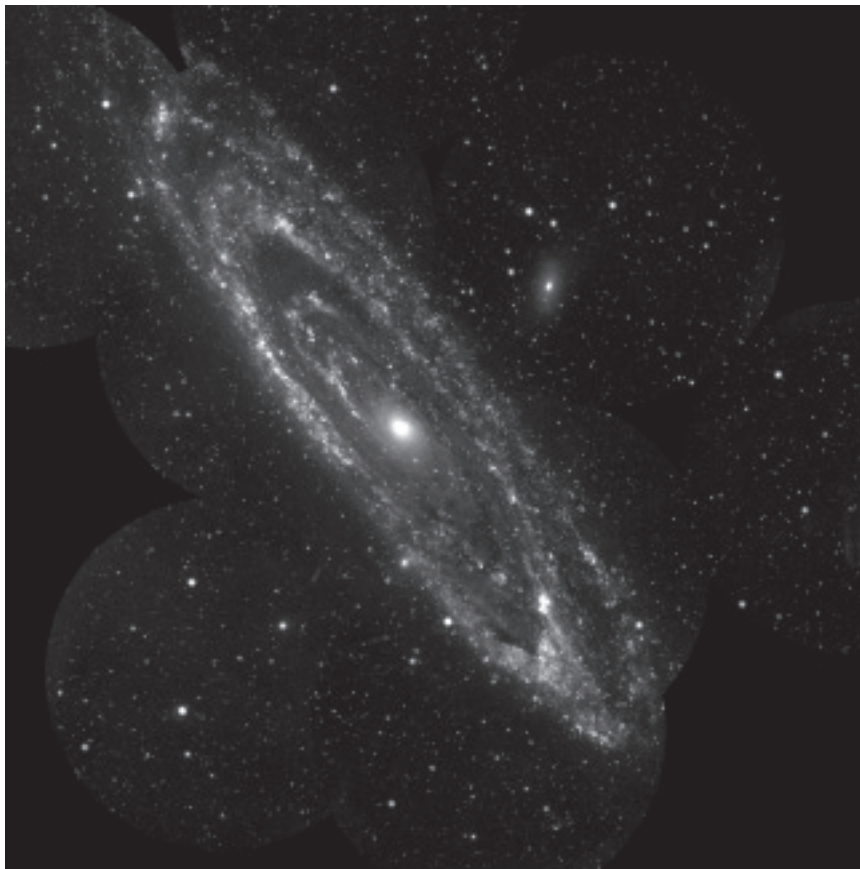
This is a good time of year to see the Andromeda galaxy. When the sun sets and the sky fades to black, Andromeda materializes high in the eastern sky. You can find it with your unaided eye. At first glance, it looks like a very dim, fuzzy comet, wider than the full moon. Upon closer inspection through a backyard telescope—wow! It's a beautiful spiral galaxy.

At a distance of "only" 2 million light-years, Andromeda is the nearest big galaxy to the Milky Way, and astronomers know it better than any other. The swirling shape of Andromeda is utterly familiar.

Not anymore. A space telescope named GALEX has captured a new and different view of Andromeda. According to GALEX, Andromeda is not a spiral but a ring.

GALEX is the "Galaxy Evolution Explorer," an ultraviolet telescope launched by NASA in 2003. Its mission is to learn how galaxies are born and how they change with age. GALEX's ability to see ultraviolet (UV) light is crucial; UV radiation comes from newborn stars, so UV images of galaxies reveal star birth—the central process of galaxy evolution.

GALEX's sensitivity to UV is why Andromeda looks different. To the human eye (or to an ordinary visible-light telescope), Andromeda remains its usual self: a vast whirlpool of stars, all ages and all sizes. To GALEX, Andromeda is defined by its youngest,



hottest stars. They are concentrated in the galaxy's core and scattered around a vast ring some 150,000 light years in diameter. It's utterly *unfamiliar*.

"Looking at familiar galaxies with a new wavelength, UV, allows us to get a better understanding of the processes affecting their evolution," says Samuel

Boissier, a member of the GALEX team at the Observatories of the Carnegie Institution of Washington.

Beyond Andromeda lies a whole universe of galaxies—spirals, ellipticals and irregulars, giants and dwarfs, each with its own surprising patterns of star formation. To discover those patterns, GALEX has imaged hundreds of nearby galaxies. Only a few, such as Andromeda, have been analyzed in complete detail. "We still have a lot of work to do," says Boissier, enthusiastically.

GALEX has photographed an even greater number of distant galaxies—"some as far away as 10 billion light-years," Boissier adds—to measure how the rate of new star formation has changed over the universe's long history. Contained in those terabytes of data is our universe's "life story." Unraveling it will keep scientists busy for

years to come.

For more about GALEX, visit www.galex.caltech.edu. Kids can see how to make a galactic art project at spaceplace.nasa.gov/en/kids/galex/art.shtml.

Michael Brown to talk on January 25, 2005 at 7 p.m.

Andrew Fraknoi

Michael Brown of Caltech will give a non-technical illustrated talk on: Beyond Pluto - a 10th planet. It will be in the Smithwick Theater, Foothill College, El Monte Road and Freeway 280, in Los Altos Hills, California. This event is free and open to the public. Parking is \$2 at Foothill College. Call the series hot-line at (650) 949-7888 for more information.

The series is co-sponsored by NASA Ames Research Center, Foothill College Astronomy Program, SETI Institute, and the Astronomical Society of Pacific.

Dr. Michael Brown is the discoverer of the object that some say is the 10th planet. His team has also discovered Sedna and Quaoar. He will talk about how his team is finding these objects. He will also give his ideas on the controversy regarding which if any of these objects should be called planets. Dr. Brown is quite famous because of these discoveries and he is rarely in Northern California so this talk may attract large numbers - please arrive early. The American Astronomical Society is helping to bring Dr. Brown for this special event.

Solar System Stats for January 2006

Adapted from the Observer's Handbook published by The Royal Astronomical Society of Canada which in turn gets this data from the U.S. Naval Observatory's Nautical Almanac Office and Her Majesty's Nautical Almanac Office and contributions by David Lane, St. Mary's University, Halifax NS.

		Mercury	Venus	Mars	Jupiter	Saturn	Uranus	Neptune	Sun
RA	1	17 ^h 41 ^m	20 ^h 07 ^m	2 ^h 32 ^m	14 ^h 44 ^m	8 ^h 50 ^m	22 ^h 38 ^m	21 ^h 14 ^m	18 ^h 45 ^m
	11	18 ^h 48 ^m	19 ^h 46 ^m	2 ^h 43 ^m	14 ^h 50 ^m	8 ^h 47 ^m	22 ^h 40 ^m	21 ^h 15 ^m	19 ^h 29 ^m
	21	19 ^h 57 ^m	19 ^h 21 ^m	2 ^h 58 ^m	14 ^h 56 ^m	8 ^h 44 ^m	22 ^h 42 ^m	21 ^h 16 ^m	20 ^h 12 ^m
Dec.	1	-23°32'	-17°50'	16°35'	-14°46'	18°23'	-9°24'	-16°13'	-23°02'
	11	-24°13'	-16°17'	17°35'	-15°12'	18°36'	-9°15'	-16°07'	-21°52'
	21	-22°40'	-15°27'	18°42'	-15°33'	18°50'	-9°04'	-16°01'	-20°00'
Dist (AU)	1	1.33	0.29	0.78	5.91	8.24	20.59	30.85	0.983
	11	1.40	0.27	0.86	5.77	8.17	20.73	30.94	0.983
	21	1.43	0.28	0.96	5.61	8.13	20.84	31.00	0.984
Mag	1	-0.4	-4.3	-0.6	-1.8	-0.1	5.9	8.0	
	11	-0.6	-4.0	-0.3	-1.9	-0.1	5.9	8.0	
	21	-1.1	-4.1	-0.1	-1.9	-0.2	5.9	8.0	
Size	1	5.0"	57.9"	12.1"	33.3"	20.2"	3.4"	2.2"	32'32"
	11	4.8"	62.4"	10.8"	34.2"	20.4"	3.4"	2.2"	32'32"
	21	4.7"	60.6"	9.8"	35.1"	20.4"	3.4"	2.2"	32'30"

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Submit

Submit articles for publication in the
 SJAA Ephemeris. Send articles to
 the editors via e-mail to
 ephemeris@sjaa.net. **Deadline,**
10th of previous month.

SJAA loaner scope status

All scopes are available to any SJAA member; contact Mike Koop by email
 (koopm@best.com) or by phone at work (408) 473-6315 or home (408) 446-0310
 (Please leave message, phone screened).

Available scopes

These are scopes that are available for immediate loan, stored at other SJAA members
 homes. If you are interested in borrowing one of these scopes, please contact Mike Koop for a
 scope pick up at any of the listed SJAA events.

# Scope	Description	Stored by
1	4.5" Newt/ P Mount	Annette Reyes
3	4" Quantum S/C	Hsin I. Huang
6	8" Celestron S/C	Karthik Ramamurthy
7	12.5" Dobson	Tom Fredrickson
8	14" Dobson	Colm McGinley
10	Star Spectroscope	Jim Albers
12	Orion XT8 Dob	Kevin Roberts
14	8" f/8.5 Dob	Colm McGinley
15	8" f/9 Dobson	Mike Koop
19	6" Newt/P Mount	Daryn Baker
23	6" Newt/P Mount	Wei Cheng
24	60mm Refractor	Al Kestler
26	11" Dobson	Vivek Kumar
27	13" Dobson	Steve Houlihan
28	13" Dobson	Anupam Dalal
29	C8, Astrophotography	Mark Ziebarth
32	6" f/7 Dobson	Sandy Mohan
33	10" Deep Space Explorer	Jack Zeiders
34	Dynamax 8" S/C	Yuan-Tung Chin
35	Meade 8" Equatorial	Ethan Romander
37	4" Fluorite Refractor	Carl Ching
38	Meade 4.5" Digital Newt	Tej Kohli
41	18" Sky Designs Dob	Len Bradley
42	11x80 Binoculars	Ritesh Vishwakarma
43	Orion XT4.5 Dob	Gary Mitchell

Scope loans

These are scopes that have been recently loaned out. If you are interested in borrowing
 one of these scopes, you will be placed on the waiting list until the scope becomes available
 after the due date.

# Scope	Description	Borrower	Due Date
13	Orion XT6 Dob	Rajiv Vora	01/20/06
16	Solar Scope	Ken Frank	02/13/06
36	Celestron 8" f/6 Skyhopper	Charles Santori	02/17/06
40	Super C8+	Sander Pool	12/23/05

Extended scope loans

These are scopes that have had their loan period extended. If you are interested in
 borrowing one of these scopes, we will contact the current borrower and try to work out a
 reasonable transfer time for both parties.

# Scope	Description	Borrower	Due Date
2	6" f/9 Dob	John Paul De Silva	?
9	C-11 Compustar	Bill Maney	Indefinite
11	Orion XT6 Dob	Ravi Shankar Erram	12/10/05
21	10" Dobson	Michael Dajewski	Repair
39	17" Dobson	Steve Nelson	01/02/06

Waiting list:

(lots of scopes available!!!)

San Jose Astronomical Association Membership Form

You can join or renew with the SJAA online at <http://www.sjaa.net/SJAAMembership.html>

New **Renewal** (Name only, plus corrections below)

Membership Type:

- Regular — \$20
- Regular with Sky & Telescope — \$53
- Junior (under 18) — \$10
- Junior with Sky & Telescope — \$43

Subscribing to Sky & Telescope magazine through the SJAA saves you \$10 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 (with your check) to

**San Jose Astronomical Association
P.O. Box 28243
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Make your check payable to "SJAA"
(not Sky Publishing)

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