

SJAA EPHEMERIS

VOLUME 6 NUMBER 1 OFFICIAL PUBLICATION OF THE SAN JOSE ASTRONOMICAL ASSOCIATION January 1995



The Eyepiece
by Bob Madden

As I prepare for this publication I'm trying to understand how I may include an item associated with the end of December in the January issue. I have decided you will understand, so here goes. The past year has been good to the Association. We have stayed afloat financially, even though we felt we were sinking, and will assuredly increase the dues. The question is to what, \$15 or \$20? If you have any input to what is acceptable, now is the time to tell each board member what you think about it. As a board member I feel we shouldn't vote an increase blindly. Each board member's telephone is listed on page 7. Call and spend some time discussing your favorite astronomy issue with them.

We're nearing the end of the process to revamp the way school star parties are run. Several members became concerned after a ruckus party and commented that something should be done about it. Jim Van Nuland has been doing a very good job scheduling and getting telescopes out for the school children, but even he agrees there could be improvement. This is about completed and will be presented to

Jan 6: Star Party, Hough Park. Sset 5:05 pm, 36% moon sets 11:11 pm.

Jan 7: No activity. Time to read Sky & Telescope magazine.

Jan 14: Board and General Meeting at Milpitas Library. Board of Directors meeting at 6:15 pm followed with the General Meeting at 8:00pm. Bob Fingerhut speaking on his trip to Brazil to watch the Nov. total solar eclipse.

Jan 21: Observational Astronomy Class, Hough Park, 8:00 pm by Jack Petersen

Jan 28: Starparty, H. Coe State Park. Sset 5:26 pm, 4% moon rise 5:55 am. ALSO: Public starparty at Grant Ranch County Park.

Feb 3: Star Party, Hough Park. Sset 5:34 pm, 20% moon sets 9:55 pm.

Feb 4: No Activity

Feb 11: Board and General Meeting at Milpitas Library. Board of Directors meeting at 6:15 pm followed with the General Meeting at 8:00pm. Speaker will be

Feb 18: Observational Astronomy Class, Hough Park, 8:00 pm by Jack Petersen. The second in a series.

Feb 25: Star Party at Fremont Peak Sset 5:56 pm, 13% moon rises 4:33 am. Also a star party at Grant Ranch County Park.

Mar 3: Star Party Hough Park. Sset 6:04 pm, 8% moon sets 8:39 pm.

Mar 4: Star Party, H. Coe SP. Sset 6:03 pm, 14% moon sets 9:36 pm. Also Star Party at Grant Ranch Co Pk.

the board of directors. As you can see talking to your board members is an effective way to cause change. It can be slow and agonizing sometimes, but it can work. You can participate; you can become involved.

Why is it that amateur astronomers seem to be solitary people who are only involved observing with one or two friends. Doing the job as your editor I have come to know many of you and I must say many have a sense of humor, knowledge of astronomy and a desire to teach others, but don't become involved in our group's projects. It is difficult for me, sometimes, to understand this syndrome.

February is election month. Be sure to come and cast your vote. The interpretation of the By-laws are that the Board of Directors will be elected from the general membership present at the February General Meeting. Hopefully I will be able to include a Vita of each candidate in the next issue. I don't remember it being done before so I'm going to try it this time. If a candidate doesn't have one, you could say they aren't too interested in your vote. Come and vote. Don't let a few decide who shall represent you in the SJAA.

Forty Years Ago this month

by Jim Van Nuland

The second meeting of the proposed astronomy club was held Jan. 10, 1955. Sixteen people were present, only six of whom were at the first meeting.

Roy Griffin, president of the Peninsula Astronomy Club, was introduced. Mr. Griffin told the group about the organization of their club, intents and purposes, good and bad points. His advice was that a definite purpose should be settled upon, whether to be a telescope building club, or an educational emphasis, or some combination.

See 40 years on page 3

Pluto and Charon

Dr. Dale Cruikshank
NASA, Research Division
reported by Jim Van Nuland

Found only in 1930, Pluto is so far away that Earth-based instruments can tell us very little about it. Other than "small", the size and mass were very poorly known until the discovery of its satellite Charon only 10 years ago, with the stupendous good luck that Pluto and Charon were about to undergo a series of mutual occultations! This happens only every 130 years.

Charon allowed accurate calculation of the mass (which turned out to be lighter than expected), and the occultations allowed determination of the sizes, (which are larger than expected). In relative terms, Charon is the largest moon in the solar system, being over half the size of Pluto.

The occultations also allowed construction of some crude albedo maps, but little is known about the surfaces of these distant bodies. Only Pluto has not been visited by spacecraft; it was on the wrong side of the Solar System to be included in the Voyager Grand Tour. NASA is hoping to a Pluto flyby mission, but there are so many political problems in the funding, that for the present, one should not get one's hopes up; it may be many years away.

The plan is to fly directly toward Pluto, rather than the long looping paths around other planets. The hope is to send two probes, separated in time such that both sides of the planet can be examined. There is serious talk about collaboration with the Russians, who have some large rockets in the warehouse. Recent rule changes require that the cost of launch must be included in the overall budget; previously the launch costs were considered part of the Shuttle's budget. So the rocket would be a very important contribution. Even with the direct flight, it would take 10 years to get there, and then the encounter would last only one day!, followed by a year of data transmission, the distance being so far, and power being limited.

The region from Neptune and beyond contains the putative "Kuiper Belt", a multitude of small bodies at 30 to

60 AU that are only now beginning to be discovered. A search in Neptune-type orbits has turned up 13 of them, and extrapolation suggests that there may be 25,000 of them! Other work indicates that the total mass of the K.B. must be below 5 Earth masses, but 25,000 of the kind already found would total only 0.1 Earths — so these are small objects!

Pluto is a small body; is it simply the first K.B. object? Clyde Tombaugh resents this sort of talk, but in fact, the K.B. objects range from sand to 300 km., whereas Pluto's diameter is 2302 km and Charon's 1186 km. Spectral studies indicate that they differ from the K.B. objects, too. So it is most unlikely that Pluto would be reclassified.

Recent work has shown that Pluto's orbit is a stable one. It had been thought that it was chaotic on a scale of a few million years, but a resonance with Neptune has been found, such that Pluto will stay put. Though planet-crossing orbits are unstable, Pluto's 17 degree inclination avoids the problem.

Until 1970, it was not possible to get any spectrum at all, Pluto being so faint. It looks like nitrogen and methane, at about 40 degrees Kelvin. The repaired Hubble Space Telescope is able to obtain separate spectra of the two bodies! The HST is also able to resolve some gross surface features. Charon is darker than Pluto, and the surfaces are irregular.

Along with the occultation results, it's now known that Pluto and Charon are tidally locked so that BOTH of them continuously face each other. In addition, their mutual orbits are very nearly circular, another consequence of the tidal locking process. Charon's orbit (and the rotational pole of Pluto) are tilted over by 122 degrees, which means that they rotate retrograde.

I thoroughly enjoyed reading "Out of the Darkness: the Planet Pluto" by Clyde Tombaugh. Another excellent read is David Levy's biography "Clyde Tombaugh: Discoverer of the Planet Pluto". (Did you know Clyde found two comets? I didn't.)

[We would like to take this opportunity to thank Dr Cruikshank for a very interesting talk at our November meeting]

SJAA speakers

Dec. 17; Jan. 14; Feb. 11

Here is a preview of our speaker's series. Editors of regional astronomy club newsletters are asked to publicize these speakers, as they are especially interesting topics. Announcements at your club's meetings are also welcomed. We welcome guests from near and far; no fees are charged. The material on the Inca was graciously supplied by Dr.Dearborn.

The talks are held in the Milpitas Library, Saturdays at 8 p.m. To get to the library, take the 237 exit from Hwy. 880. Follow 237 east for 1.1 miles, to a light, at Milpitas Blvd. Then turn left, and immediately take the second driveway, into the parking lot.

December 17: Bob Kesserling, Grace Autio, Jim Albers: Jupiter/SL9

Our speakers spent a week at White Mountain, observing the collision of Comet Shoemaker-Levy 9 with Jupiter. With equipment available to amateurs, they imaged the planet using video, then selected individual frames for further processing. Other techniques were used as well.

January 14: Bob Fingerhut
Solar Eclipse

Bob traveled to Brazil to observe the eclipse of the sun November last. I have not seen his results, but he smiled broadly when asked if his trip was successful. Bob is a long-time member of SJAA, and is experienced at eclipse chaser, astrophotographer, and speaking.

February 11: Dr. David S. Dearborn

Astronomy and Empire; The Inca

Archeoastronomy of Peru

Dr.Dearborn is a research physicist at LLNL, and has published in Astrophysics as well. Since 1980, he has spent 6 field seasons in Peru studying the astronomy practices of the Inca, and has published several journal articles on the results. With Brian Bauer, an archaeologist, he has just completed a book entitled *Astronomy and Empire in the Ancient Andes; the Cultural Origins of Inca Sky Watching*.

"Star Ware", Philip S. Harrington
Reviewed by Doug Ferrell

As amateur astronomers we all tend to be analytical types who enjoy recognizing the details and subtleties in life. So naturally anything which enhances our view of the universe will garner our attention. I believe I have found a book which does just this: "Star Ware" by Philip S. Harrington.

As I recently became active in astronomy again after about ten years of chasing other interests, I began searching for up to date information on the state of things since I had been last involved. I found *Star Ware* to be a great help with respect to telescopes, accessories, books, software, and just about anything else which can be bought or built for use in astronomy.

This book is not just a catalog or list of available items, but includes thoughtful commentary from various perspectives. There are introductory sections which explain the basics of the most popular telescope designs and where their advantages and disadvantages lie. Following this is an exhaustive chapter which includes a paragraph or more on each manufacturer's offerings in each class of instrument (including binoculars). Informative charts and tables provide easy to grasp comparisons between the various products.

Probably the single most useful chapter for me was the one entitled "The Eyes Have It." Eyepieces, Oculars, "Grenades," or makeup magnets, are the part of a telescope which can make you the happiest or the most frustrated astronomer at Fremont Peak. Harrington discusses most of the currently available designs while tending to emphasize the more traditional (and affordable) ones. Again helpful tables summarize and enhance salient issues.

Star Ware continues with chapters on options (finders, filters, collimation tools, atlases, books, periodicals, electronics, cameras, film, CCDs, clothing, flashlights, chairs, telescope mounts, and tools), homemade equipment, and telescope maintenance and operation. Everything from the lowly Telrad to digital setting circles is covered, though not always in great detail.

Harrington's advice is consistently backed by logic and reason while remaining interesting and almost conversational.

The last two chapters depart from the expected theme of the book by discussing observing methods and some interesting objects (Messier, bright NGC, and double stars) for novices to observe. Wide field photographs and finder charts are included for some of the more spectacular objects. Some nice amateur photographs appear here—all taken through 16 inch or smaller instruments. Sketches of the visual appearance of several objects are also included to give the beginner a better idea of what to expect at the eyepiece of a moderately sized telescope.

Harrington provides even more information in his many appendices. Lists of manufacturers, distributors, publishers, dealers, a recommended equipment checklist, eclipse events through 2000, planetary visibility tables through 2000, Messier's list plus other bright objects (including several for southern hemisphere observers), a constellation list with translated meanings, abbreviations and the genitive form (for those who have long since forgotten their Latin), and finally the ubiquitous unit conversion table are all found here.

I would highly recommend *Star Ware* to any amateur astronomer who is in the market for new equipment—especially the beginner who needs more than lists and descriptions of products. Harrington's point-counterpoint style of presentation provides much more thoughtful insight into current astronomical instruments and accessories and, for the novice, the sections on basic optics, telescope designs, maintenance, and observing approaches are a nice bonus. I have seen *Star Ware* in local bookstores and astronomical shops in the S. F. Bay Area. It is 373 pages in length, softbound, and retails for around \$20.

The Lunitic Fringe
by Rich Neuschaefer

Ok, so that bright Moon is making it difficult to see your faint fuzzies, don't curse the light. See if you can find

the following Lunar objects. **

The following objects can be seen when Moon is about 8 days old, 1/3 of the way down from the top (North end) and near the terminator.

Easy:

ARCHIMEDES: a large flooded crater (83km in diameter)

APENNINE MOUNTAINS: a long (600 km), curving range ending at the crater Eratosthenes (58 km)

ERATOSTHENES: a prominent crater (58 km) with an interesting central peak.

Medium:

WALLACE: a flooded crater (26 km) a little above Eratosthenes, in Mare Imbrium. Try to see the "waves" in the smooth Mare Imbrium between Wallace and Archimedes.

Challenge:

HADLEY'S RILL: this is a thin line that looks like a very crooked question mark. First draw an imaginary line from Eratosthenes to Archimedes. Next "draw" a line from Archimedes at about 90 deg from the first meets the mountains, you will see a valley about 90 km long. In this valley you should see a thin line like a crooked question mark (80 km long). Apollo 15 landed very close to the upper end of Hadley's Rill.

** Note: a copy of the book "Atlas of the Moon" by Antonin Rukl will be a big help in finding your way around the Moon. It sells for about \$29.99 and is available from Orion Telescope Center and (I believe) through "Astronomy" magazine.

40 Years (continued from page 1)

He answered questions, including a resume of the national and regional organization of amateur astronomy, and the requirements for recognition of this new club by higher echelons.

Mr. Krumm, after thanking Mr. Griffin, gave a talk on the constellation Orion; thus inaugurating what may become a program known as "Constellation of the Month" borrowed from the Peninsula club. Mr. Krumm was followed by Don Thompson with a paper entitled "Life on Mars?" originally written as an English theme.

After a discussion on whether to incorporate the meeting was adjourned.

IN PRAISE OF THE (SUPPOSEDLY) UN-PRAISEWORTHY

Giant binoculars. You know the kind. The real large ones. The 15x80 kind. I have a confession to make. I own a pair. However, that's not the worst part. I also have to confess that I actually love using them. I know. I know. You probably don't. You probably abhor them, or at least would never be caught in the open with a pair. The reasons people feel like that are seemingly legion. I think I have heard them all. The binoculars are too heavy. They are too bulky. They can't be held steady enough. They are too expensive. The field of view is too narrow compared to the wonderful 7x50's or even the ubiquitous 10x50's. They are just not...elegant. And, why not just buy a small, cheap telescope instead?

While the above concerns about giant binoculars are sometimes expressed verbally, most often they are delivered non-verbally. A not-to-well hidden roll of the eyes, or a long sigh while shaking the head, or a glance as if one had just stumbled upon their first complete fool, seem to be the normal and/or expected response to giant binoculars.

So, given the concerns, is there actually anything praiseworthy about the giants? I answer a definite yes! First, for binoculars, they bring in a lot of light. Affixed to a sturdy tripod, they provide the observer a sparkling view of the night skies. If I have done my math correctly, 50 mm binoculars (with approximately 2" lenses) provide the viewer a combined total of about 6.3 square inches of light gathering power. On the other hand, 15x80's have approximately 3.1" lenses which provide the viewer a combined total of over 15 square inches of light gathering power or about two-and-a-half times the 50 mm binoculars. And while the 5.3 exit pupil (a figure relating to the amount of light binoculars can deliver to the eye) of the 15x80's falls short of what 7x50's can deliver, they actually exceed the 5.0 exit pupil of the 10x50's while providing 50% more power. Nice views indeed. Admittedly not telescopic views. However, what

views you see are, well, very binocular.

That brings me to my second favorable point. The giants, whether 11x or 15x or larger, are...binoculars. We are a binocular species. We have two eyes and those two eyes enjoy seeing images of the same object at the same time. Binoculars, especially those that have a sufficient exit pupil are, therefore, comfortable on the eyes, and provide a marvelous side benefit —depth perception.

That leads me to my third point. The giants are also wonderful instruments for daytime terrestrial viewing. With large lenses providing lots of light and detail, significant magnification, relatively large exit pupil, and the ability to provide depth perception, giants are valuable additions to daytime viewing enjoyment.

Fourth, utilized in either terrestrial or celestial applications, giants are highly portable and easy to use. I merely leave mine set up on the tripod near the door, and when seeing looks good, and, especially if I have only 10 or 15 minutes to observe (it happens like that most of the time - my wife and I have 5 children), I just pick up the tripod, plunk it down in the front or back yard, and enjoy the sky right now. Then putting it all away is just as easy.

Fifth, the giants are generally of high quality and, in my opinion, a good value. Price? About \$350 - mail order. My 15x80's are fully multi-coated and have BAK 4 prisms. BAK 4's transmit significantly more light than the less expensive BAK 7's. Stars are relatively crisp and the moon is revealed, for binoculars, in outstanding detail.

The sixth reason I love the giants is just that. The outstanding binocular view of the moon. Smaller binoculars may provide better viewing of complete constellations in the night sky, but the giants are excellent for lunar observing. They provide superb light for detail sufficient magnification to see that detail, and are quickly accessible and easily portable for those inevitable, yet available, 10-minute observing windows. Utilized with a good lunar handbook, giants reward you with many memorable moments looking at the moon. After all, the moon is up there a lot, and

binoculars provide anyone with a very convenient method to enjoy the view. In the way of books, I particularly like using *Atlas of the Moon* by Antonin Rukl. It is outstanding. It breaks the moon down into over 70 intricately hand-drawn sections with excellent descriptions of what to look for. I find equally as important Ernest Cherrington's *Exploring the Moon through Binoculars and Small Telescopes*. This book provides a wealth of written detail as well as a number of large photographs of the moon in its different phases. *Touring the Universe through Binoculars* by Philip S. Harrington is also very good as it focuses on visual targets other than the moon.

Seventh, and finally, one cannot overlook the obvious advantage of possessing an optical instrument that generates such profound, philosophical, and delightful conversations as evidenced by the above!

Our family enjoys taking binoculars to Santa Teresa County Park (at the end of Bernal Road) on Friday or Saturday nights for evening sky viewing. It closes at sundown, so we just park near the top of the hill on the small access road. We have been pleasantly surprised by the darkness of the sky. It certainly isn't Fremont Peak by any stretch of the imagination, but it is not bad seeing for being so close to the city. Further more, it is just a 15-minute ride for us, and we are always up there alone.

To help the viewing, I also have a light pollution filters for the binoculars and they help darken the sky even further, although they will sometimes give a slight green tint to some stars. Despite that, I consider them an essential accessory.

So if you ever see me with the giants, go ahead and share your opinion about them. I won't mind at all. And then keep on talking. Talk about your love for the sky, about the stars, and about telescopes. Especially about telescopes. I still have a lot to learn about them.

By the way, while you are talking to me, and, if none of your friends are looking, go ahead and take a peak through my giants.

James (Jim) N. Ricks
1-408-281-1991

Book Review

[Hi, Bob, here's a book review. I got permission from the reviewer, who is also editor of the EAS's newsletter, to reprint the article. Use my paragraph, too, if you think it fits. After publication, please send a copy of the Ephemeris to him (I think it's a him): Ellis Myers, 215 Calle La Mesa, Moraga, CA 94556.]

I greatly enjoyed David's book, but had to return it before I was able to write a review. The book is written in David's personal, chatty, anecdotal style, and tells about comets and comet-hunting in a manner that can be told only by an insider. STRONGLY recommended!

The Quest for Comets

by David Levy

Book review by Ellis Myers, EAS,
originally published in
the EAS Reflector

David H. Levy is one of the world's foremost amateur astronomers, but he is also a lecturer and a writer of renown. Of the book "The Quest for Comets: An Explosive Trail of Beauty and Danger", Robert Havlen, Executive Director of the Astronomical Society of the Pacific, says "Levy's writing talent and dedication to comet hunting are perfect ingredients for a very enjoyable story about comets and the people who pursue them".

Certainly in this book, Levy captures the exhilaration of comet hunting, an art as well as a science, in which he is a master. From this book, readers will understand the nature of comets, and they will also reach an understanding of the impacts comets have had, not only the physical impacts of planetary collisions, but the emotional impacts on peoples and cultures.

Published in 1994, but before the end of the journey for SL-9, the book still presents the facts about the discovery of that momentous comet, and provides a historical perspective of the comet during the period when scientists were yet uncertain about the consequences of the impact.

[Sent in by Jim Van Nuland]

Lunar Eclipse...a remembrance

Date: 17 Nov 1994
by Carolyn Strong

Sometimes we miss the simplest truths. Maybe it's because we are looking too hard or deep, or our expectations are incongruent with reality. I've found that astronomy can reveal the truths that can put my place in the universe in perspective....but only when I look just deep enough....

It was a hot August night that held the threat of a thunderstorm. A lunar eclipse was to take place this night. Clouds piled up during the afternoon in Portland, so Gary and I decided to drive east, over the Cascades to where, hopefully, we would find cloud breaks. By the time we arrived in Hood River, the sky was totally clear. We rode for several miles through orchards and oak forest and came to a clearing on a flat bluff overlooking the Hood River Valley.

A small group of people had already assembled on the field of dried grass and sagebrush surrounded by gnarled oak trees. I hurried to set up the C8. The moon was already partly in the earth's shadow.

This was like no other lunar eclipse I had seen. The eclipse had a sharp contrast between shadow and light. The exposed area of the moon was brilliant white against the dark-orange shadow. It was gorgeous, breathtaking. Hoots and hollers from the crowd echoed across the valley. I was transfixed. Then the moon went completely into shadow and became a solid dark, brown-orange circle against the black sky. It grew strangely quiet, like a sacred place of ancients.... What was I witnessing? I stood watching, waiting, not knowing what I should be feeling. This was a moment that Galileo and early astronomers had awaited. I tried to see it through those eyes from history. What was this mystery? Time passed.

Then the bright, sharp whiteness began to appear as the shadow

moved from the edge of the moon. The crowd responded with shouts. I watched the shadow move. Was I seeing the mountain ridges of Mexico on the moon? Was it the curve of ocean?

Suddenly, I realized I hadn't even used the scope and now it was almost over! I hurried to turn the scope. The brightness of the moon nearly blinded me. I realized whatever moment to be experienced at a lunar eclipse, whatever feeling I was supposed to feel...the time for it had passed. I replace the cover on the scope and stood with my hands in my pockets....

Shouldn't I come away changed? Did I miss something?

And then, with the moon half in shadow, half in sunlight, it struck me. There was in front of me the simple truth sought so many centuries ago. This was our space, our shape, and that shape called out the long sought-after mystery. I only had to look and see. Galileo saw it... and so had I. We are round. The shadow proved it.

Carolyn

strong@uofport.edu

Something We're Working on and Need Help

by Bob Madden

This is just a space filler, but I thought I would mention a something available for some volunteers to help out with. If you are interested, please call Bob Brauer, our president, and tell him you'd like to help. He can then point you to the person who is leading the project. It may end up being you.

We want to start a mentor program. It has been suggested by Gene Cisneros and Mark Wagner on separate occasions. This would be to take a new amateur under your tutelage and help him along with advice about equipment and observing. The observing would be at a mutually selected site, perhaps at Fremont Peak.

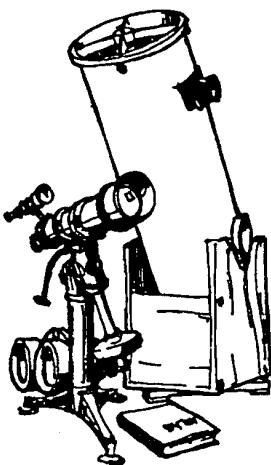
I remember when Bob Fingerhut did that for me and my wife with a pair of binoculars at the Peak one night. What a wonderful time. I won't forget it.

Who will help? Will it be you?

1994 SJAA Calendar

General Meeting	Houge Park Star Party	Observational Astronomy Class
Jan 14	6	25
Feb 11	3	18
Mar 11	3	18
Apr 8	7	15
May 13	5	20
June 10	2	15
July 8	7	17

Please read your *Ephemeris* each month for changes



Telescope Loaner Status

by Paul Barton

SJAA	No.	Name	User	Due
1	4-1/2"	Newt/P mount	----->	available
2	6"	Dobson	John Paul Dasilva	12/3/94
3	4"	Quantum	Jim Hodgers	1/8/95
5	60 mm	Refractor	----->	available
6	C-8	Celestron	Lee Courtney	1/16/94
7	12-1/2"	Dobson	Tom Rice	Indefinite
8	14"	Dobson	Ken St George	2/1/94
14	6"	Newt/P mount	----->	available
15	8"	Dobson	Bob Elsberry	12/21/94
18	8"	Newt/P Mount	Jerry Lovelace	1/6/94
19(B)	6"	Newt/P mount	----->	available
20	4-1/4"	Dobson	----->	available
21	10"	Dobson	Steve Wincor	1/18/94
23	6"	Newt/P mount	----->	available

Solar telescope (#16). Available only to experienced members for special occasions such as day time public star parties, etc. Call.

(on waiting list)

Lee Courtney, Bob Mallot, Steve Wincor

If you want to borrow a telescope call Paul Barton (number is on the credit Marquee) and get your name on a general list (any telescope) or on a specific telescope list.

ASTRO ADS

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Bob Madden

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Meade 6-inch Optical Tube Assy. Has a scratch on diagonal. Good for parts or fixing. Can Be made into a Dobson \$150 Call Bob Madden 264-4488 12/94

Meade 10-inch Optical Tube Assy. Good shape. Has Parks Mounting rings. \$200 Call Bob Madden 264-4488 12/94

Questar 3.5-inch, Pyrex Mirror w/standard coatings, New power-glide w/hand control, runs on 9VDC, CW, Camera Adapter, solar filter, Davis&Sanford tripod. MC. \$2500. Call Herb Robins 408-269-0946 or 408-356-8659 12/94

Long-time SJAA member

Doug Wells no longer drives, so he needs a ride to the general meetings. He lives at Villa Fontana, 5555 Prospect Road, just west of Lawrence Expressway. Would someone who could bring him along please call him at 255-5555 apartment 227.

CELESTIAL CALENDAR - JAN. 1995
by Richard Stanton

Lunar Phases:		Date	Rise	Trans	Set
NM	02:56	01	07:20	12:33	17:49
FQ	07:46	08	11:35	18:18	00:11
FM	12:27	16	17:33	00:37	06:58
LQ	20:58	23	23:43	05:28	11:02
NM	14:49	30	06:42	12:10	17:43

NEARER PLANETS

Mercury	07	08:25	13:17	18:10
1.02 A.U.	17	08:25	13:35	18:45
Mag. -1.8	27	07:49	13:12	18:34
Venus	07	03:45	08:56	14:06
0.70 A.U.	17	03:54	08:58	14:01
Mag. -5.0	27	04:05	09:03	14:02
Mars	07	20:33	03:25	10:13
0.74 A.U.	17	19:46	02:41	09:32
Mag. -1.2	27	18:53	01:53	08:47
Jupiter	07	04:22	09:18	14:13
5.97 A.U.	17	03:52	08:46	13:41
Mag. -1.9	27	03:21	08:14	13:08
Saturn	07	10:11	15:43	21:15
10.3 A.U.	17	09:34	15:07	20:40
Mag. +1.1	27	08:58	14:32	20:06

SOL Star Type G2V VMag -26.72

RA	Dec	Date	Time
19:15	-22:18	07	07:23 12:14 17:05
19:55	-20:48	17	07:21 12:18 17:15
20:37	-18:32	27	07:15 12:20 17:26

Astronomical Twilight:

JD	Begin	End
2,449,725	07 05:50	18:38
735	17 05:49	18:47
745	27 05:45	18:56

SIDEREAL TIME:

Transit Right	07	00:00	=	06:57
Ascension at	17	00:00	=	07:37
Local Midnite	27	00:00	=	08:16

Darkest Saturday Night: 28-Jan-1995

Sunset	17:27
Twilight End	18:57
Moon Set	15:28
Dawn Next Morning	05:48

**TIMES AND DATES ARE
PACIFIC STANDARD**

Times are local civil

Derivation of these values are from
**Astronomy with your Personal
Computer**

by Peter Duffet-Smith

MacEphem

by Elwood Downey

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Comet Comments

by Don Machholz

Two returning comets have been recovered recently. Only Periodic Comet Borrelly remains visible in our skies.

The year 1995 should present several periodic comets. Periodic Comet Borrelly opens the year at magnitude nine, fading rapidly. During the summer months we can expect to see Periodic Comet Clark and Periodic Comet d'Arrest, the later at magnitude seven. Periodic Comet Jackson-Neujmin will reach magnitude 11. As the year ends, Periodic Comet Honda-Mrkos-Pajdusakova should become a binocular object. In addition to these returning objects, there may be other comets, one never knows when a new one will come along.

Periodic Comet Kopff (1994s): S. Larson used the 1.5-m reflector at Catalina Station and a CCD to record images of this comet on November 30. The object was stellar and faint at magnitude 22.8. It orbits the sun in 6.45 years and will again be closest to the sun (1.57 AU) in 18 months.

Periodic Comet Clark (1994t): This comet was recovered on December 5 by A. Nakamura of Japan. He used a 0.6-m telescope with a CCD. Then at magnitude 17.5 the comet, which takes 5.5 years to orbit the sun, will brighten to perhaps magnitude 11 by early next summer.

EPHEMERIDES				ELEMENTS			
PERIODIC COMET BORRELLY (1994)				PERIODIC COMET BORRELLY (1994)			
DATE (00UT) R.A. (2000) DEC				Perihelion date: Nov. 01.492, 1994			
12-19	09h33.5m	+50d51'	129d M	8.0	Perihelion Dist: 1.3651 AU		
12-24	09h41.1m	+54d20'	130d M	8.2	Arg. of Peri: 353.359 deg. (2000)		
12-29	09h47.0m	+57d30'	131d M	8.4	Ascending Node: 075.424 deg. (2000)		
01-03	09h51.0m	+60d18'	132d M	8.5	Inclination: 030.271 deg. (2000)		
01-08	09h52.9m	+62d44'	132d M	8.7	Eccentricity: 0.6228036		
01-13	09h52.4m	+64d46'	131d E	9.0	Orbital Per: 6.88 yrs.		
01-18	09h49.6m	+66d24'	131d E	9.3	Source: MPC 18259		
01-23	09h45.1m	+67d38'	130d E	9.6			
01-28	09h39.1m	+68d28'	129d E	9.9			
02-02	09h32.3m	+68d56'	128d E	10.2			
02-07	09h25.5m	+69d03'	126d E	10.5			

Observing Talk

by Your Editor

Well we haven't heard from someone (anyone) who wishes to demonstrate their skills at Desk Top Publishing. It can be a rewarding effort. At least it can be what you make it. What is needed is someone with a computer and some DTP software. I use Page Maker, but have an unregistered copy of Publish It easy that will run on a MAC. I'm not familiar with PC software, but know that a Page Maker version will run on a PC. Once you get over the initial fright of Bulk Mailing at the SJ Post Office, and articles are received in a timely manner, page layout can become enjoyable. I set my travel schedule around the newsletter production, but it hasn't been a problem. Access to the Internet is helpful, but not required. Is there any one interested in taking over? Give us a call at 408-264-4488.

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