SJAA EPHEMERIS

VOLUME 5 NUMBER 12 OFFICIAL PUBLICATION OF THE SAN JOSE ASTRONOMICAL ASSOCIATION December 1994

News and Views
by Your President

After quite a lot of persuading from our hard-working newsletter editor, I have finally been motivated into writing an article as your president. I hope I can make this a monthly column; we'll see. I want to take this opportunity to present some of the issues and ideas that the SJAA is working on.

First up is an issue that effects all of us: our dues. We moved our annual dues up from $10 to $12 a few years ago. Of course, the board of directors keeps an eye on these things and we are just bit worried that there might be trouble on our horizon. Recent board meetings have spent some time discussing our income and our expenses. In order to make an informed decision on setting our dues, we will publish a financial statement in an upcoming issue of the Ephemeris and then we will need your opinions. We need to set our dues so that our income allows us to cover our expenses and fund our long-term projects.

Speaking of opinions, I'm working on a membership survey for an upcoming issue. We tend to make our plans based on the views of the people who actually attend the board of directors meetings. I'd like to hear from a wider audience. What kind of questions would you like to ask your fellow SJAA members? Let me know and I'll include them.

Dec 3: Star party, Fremont Peak. Sset 4:50 pm, 2% moon, Mset 5:59 pm.
Dec 9: Star party, Houge Park. Sset 4:50 pm, 55% moon, Mset 0:25 am.
Dec 10: No activity.
Dec 17: 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 Bob Kesserling, Grace Autio and Jim Albers of LMSC reporting on the Jupiter/SL9 collisions.
Dec 24: Watch for the gift bearer (for those that do) Happy Holiday.
Dec 31: Star party at Fremont Peak. Sset 5:00 pm, no moon.
Jan 6: Star Party, Houge Park. Sset 5:06 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, Houge Park, 8:00 pm by Jack Petersen
Jan 28: Star party, H. Coe State Park. Sset 5:26 pm, 4% moon rise 5:55 am.
ALSO: Public star party at Grant Ranch County Park.

You've heard it before, but I'll repeat it: the Ephemeris needs You. Where do you go for your observing: your backyard, a park, the beach? Have you tried any new equipment lately? Did it meet your expectations? Write a short article and let us know. Articles can be submitted by e-mail (in fact, that's how I'm sending this in). It's easy. Otherwise, you can pass along your story as a file on a diskette, or on paper, if you prefer.

It seems that some of our members have the tools and experience for desktop publishing. Do you have a scanner? laser printer? How about some good desktop publishing software? We could use your help with the newsletter. If you are interested in working on the best club newsletter around, contact myself or Bob Madden. If you think you can make it even better, let's give it a try!

I'm going to reveal a secret here; there is a club activity that is even more fun than the general meeting. It's the board of directors meeting that immediately proceeds the general meeting. A number of members have stopped by to watch the pandemonium and they quickly joined right in. Stop by and see what develops. You can get in on the latest information of all kinds. Recently, a club member at the board meeting announced that he was soon to be off on an extended visit to Australia. He wanted to know if the club could loan him a scope for his trip. Another member quickly volunteered to use of his scope for the trip. This sort of thing happens quite often. Stop by and see for yourself.

We recently held our annual slide and equipment night, and fellow club member Jack Zeiders brought along his new purchase: a Ceravolo 6 inch Maksutov-Newtonian. Since I spent quite a bit of time oohing and aahing over the instrument, he offered to let me borrow it to see if I could get some astrophotos through it. I quickly accepted before he could come to his senses (no fool me) and I've managed to get it mounted up for use on my Losmandy G-11 mount. I'm still working on getting a camera body attached, but it's rather distracting

See President on page 3

Observing the Sculptor Dwarf Galaxy

by Jay Reynolds Freeman

[I am posting this in response to interest in observing theSculptor Dwarf Galaxy. These observations were made in September,1989. This article is adapted from one that ran in the San Jose Astronomical Association Newsletter later that year.]

Despite a scheduled SJAA Star Party and superb conditions, I almost had Fremont Peak [near San Juan Bautista, California] to myself September 23 [1989]. An hour past sunset, I drove part way down the east-west road in Coulter Camp and had my choice of where to set up. Usually I can scarcely find a place to stand on that road, much less drive in. There were only about ten telescopes in the park, and fewer than 20 people in Coulter Camp, though I heard there had been another 20 people at the FPOA's 30-inch. [The FPOA is the Fremont Peak Observatory Association]

What a lovely night! A temperature inversion made conditions comfortable and dewless. Widespread dense low fog and clouds blocked city lights from the coastal plain and the Bay Area, so it got pretty dark. The sky was very transparent: With the naked eye, I could see M33 with averted vision early in the evening, when it was 50 or 60 degrees off the zenith, and could hold it steadily with direct vision later on, when the fog was thicker and the galaxy higher. With my 4-inch Celestron refractor at 50X, I could see Pleiades nebulosity when the cluster was still partly blocked by trees at the end of the road. The Merope nebula was easy, as was a smaller wisp of nebulosity that extends from Maia toward Alcyone. Later on, all the bright Pleiades stars appeared embedded in irregular balls of diffuse nebulosity. I thought I saw the Pleiades nebulosity with the naked eye as well — I often think so — but when stars are near, it is hard to distinguish irradiation within the eye from nebulae, so I am never quite sure.

Someone had a finder chart for Uranus. I chased it down in the four-inch. The tiny greenish disc was unmistakably non-stellar at 111X. A nearby star of similar magnitude provided an interesting comparison — I was able to show some relative newcomers the difference between a star image and a planetary disc not much bigger. (By the way, do you all know that your deep-sky observations don't count unless you have looked at all the planets first?) One fun thing to do with telescopes is to observe faint objects with small apertures. I have had a thing about doing so with Stefan's Quintet. I tried the 4-inch, and sure enough, at 81X, with averted vision, I could intermittantly glimpse haziness at its position. Averted vision is not the best for details, but what I suspect I was seeing was the brighter nuclear region of one of the galaxies. I saw no structure in the blur. The magnification 20 per inch of aperture, with a 1.25mm exit pupil, is a lot higher than most authorities recommend for observation of faint fuzzies, yet the Quintet was much harder to see at lower powers. This observation is not my record: I have similarly detected the Quintet with Frank Dibbell's 90mm fluorite refractor. [I later bought this instrument.]

Presently I put away my own equipment and wandered over to the FPOA observatory. About five people were looking at the Saturn Nebula. The 30-inch gave a beautiful view of this planetary. The ansae — the "rings" of the nebula — were easily seen and were markedly wider and brighter at the tips. There was structure visible in the elongated disc, and a hint of the central star.

I was getting ready to leave when I noticed a telescope I had not seen, at the east edge of the big parking lot in Coulter Camp. Here was SJAA member David Enos, with his 5-inch f/6 apochromatic Astro-Physics refractor. I had heard a lot about these instruments, and was eager for a look through one. David let me observe for a bit. This unit is a near-perfect rich-field telescope, and was doing a magnificent job on faint, extended objects. The dark sky and excellent telescope were just begging for a real challenge, and the FPOA had just given its coveted "No One's Gonna Believe Me But..." award to someone *other* than me, so I asked David a leading question.

"Have you ever tried for the Sculptor System?"

"No."

I had. During the early 1980s I attempted to observe this large, faint dwarf galaxy with several instruments, including my 8-inch f/5 Newtonian and my 11X80 binocular, without success. The galaxy is over a degree wide yet fainter in apparant magnitude than a 9th-magnitude star, so it's a toughie. I know of only one visual observation of it, by Steve Coe in Arizona, with a 4.25-inch reflector at 16X, reported by Walter Scott Houston in the November 1988 Sky and Telescope. [Possibly more since.] I gave up, not because I believed it was impossible, but because I had learned the nearby star field too well — while observing at the limit of human perception, it is all too easy for your mind and eyes to play tricks when you know where something ought to be. But that was years ago, and on September 23 [1989] all I could remember about the position of the Sculptor System was that it was somewhere (ta-da!) in Sculptor. Now was the chance for an honest retry.

I got a description of the location from Burnham's Celestial Handbook — four degrees south of alpha Sculptor — but carefully did not look at any charts. (I knew where alpha was because I had used it to star-hop to NGC 253 and NGC 288 earlier in the evening.) We put a 55mm Plossl eyepiece, with 2-inch barrel, into the 5-inch, and I started looking a couple of fields south of alpha. I saw nothing I could call an object, but presently it occurred to me that with averted vision, there was a place perhaps half a degree to a degree in diameter where the sky background seemed a little brighter than elsewhere. I centered the area and asked Enos to confirm. He agreed that at times that region did appear a bit more luminous than the neighboring sky.

This particular telescope/eyepiece combination is underpowered, in that fourteen diameters is too little magnification for a five-inch aperture: The resulting 9mm exit pupil is some 2mm larger than the pupil of the eye of a typical adult. By observing with this eyepiece, we were effectively stopping

See Sculptor page 3

Sculptor (cont from page 2)

the instrument down to about four inches, wasting light, but ensuring that the pupils of our eyes were filled with light, so that the image of any extended object on our retinas was as bright as it could possibly be.

It was exciting to see a glow, but not particularly convincing. We tried more magnification. With a 32mm Erfle in a 1.25-inch barrel, I could see no glow, though the problem might merely have been that the narrower field did not allow me to see enough of the darker background to make the bright area apparant. Back to the 55mm. The glow was still there, and when I moved the telescope rapidly back and forth by hand, by ten or twenty percent of the field width, it was easier to see.

It was time for charts. I had my AAVSO Variable Star Atlas with me, but was too lazy to dig through the huge stack of pages for the right one, so I checked my old Norton's Star Atlas to see if I had ever plotted the Sculptor System. Sure enough, I had. It's hard to read Norton's to better than a degree, so the position was not very accurate, but I returned to the telescope and star-hopped from alpha to sigma Sculptor, and thence to my pencil-mark, and found myself looking squarely at our glow. Hmn.

Then I remembered that I had with me another excellent instrument for observing faint low-contrast objects, namely my Orion 10X70 binocular, with enhanced low-reflection coatings on all surfaces where light moves between air and glass, and with BAK-4 prisms. I once compared this instrument to a binocular that was identical but for having conventional coatings and regular prisms, and found the enhanced unit noticeably better. I got it out and took a look. I could see the glow. It helped to pull my jacket up over my head and poke the binocular out the neck. I carefully noted the glow's position with respect to a 6th magnitude star south of sigma Sculptor, and with respect to a handful of 8th or 9th magnitude stars a degree or two generally west of the 6th magnitude one. Then and only then did I dig into the AAVSO atlas, whereon I had long ago plotted the Sculptor System with more accuracy.

We were right on. Actually, my estimate of the center of the glow was about ten or fifteen arc minutes north of the center of the plotted position, but the galaxy is more than a degree wide, and it is hard to determine positions when observing with averted vision. (And I have not yet found a photograph of the Sculptor System suitable for checking for possible asymmetric brightness.)

Determining a position first, then going to the charts for confirmation, is about as convincing a detection as you can get. I was pleased to log this observation, and most greatful to David Enos for the opportunity to use his fine telescope.

But I seem to have missed my calling. I should have taken up spiritualism. After this experience, seeing ghosts would be easy.

Hope you have — or had — a happy Hallowe'en.

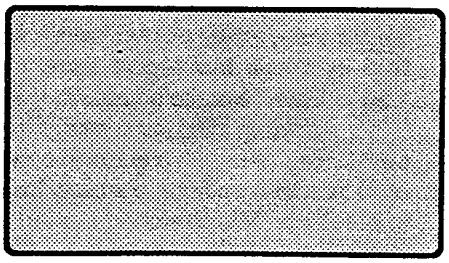
— Jay Freeman, October 1989

President (cont from page 1)

to have such fine views close at hand. The image of Saturn at 180x is razor-sharp, so I have this tendency to forget about mounting a camera and just sticking in an eyepiece.

Do you have an interest in astrophotography? How about CCD cameras? I am working with some of the current films on the market suitable for astrophotography and I will write up an article on them "real soon now". Like many of our members, I'm quite curious about the current rash of CCD cameras on the market and I'd like to hear from anyone who is using one now. Just come up and say hello at a club meeting, call me at the phone number listed elsewhere in the newsletter, or send e-mail to "Robert_N_Brauer@cup.portal.com"

Until next time, Bob Brauer



40 years ago this month

ANY AMATEUR ASTRONOMERS?

"William Weller thinks there should be an amateur astronomer's club here. With Lick Observatory close at hand, and some fast growing colleges hereabouts, it seems as though there should be plenty of prospective members. Even Old Share It has a six-inch telescope project which is taking longer than the 200-inch at Palomar. Anyone interesting in forming a club should contact Weller at CYpress 7-1739."

The above item from Richard Barrett's column "Share it With Barrett" in the San Jose Evening News, Nov.8, 1954, and the first club meeting was held at Herbert Hoover Jr.High, December 6, 1954, with about 20 people present.

The first speaker was Walter Krumm, also a member of the Peninsula Astronomical Society. He discussed astronomy clubs in general, and the gave a discussion of the two main types of astronomical telescopes, listing advantages and disadvantages.

Next was Dr.Eggen, astrophysicist from Lick Observatory, who addressed the group on the subject of the Star of Bethlehem, listing various possible astronomical explanations ranging from meteorites through comets to novae. He then answered questions on his topic, and on general astronomical items.

Camera (cont from page 4)

expert astronomers view his image they responded that it probably wasn't really there. Paul took a second image at a different time and his image contained the same object. However, Paul didn't pursue the issue any further and several years later an Australian astronomer obtained credit for observing and defining the object.

Paul showed many more superb photographs and finished with the North American Nebula. (What a photograph and way to finish his talk.) Thanks again Paul!

[ed's note: This is a fine example of the quality speakers the SJAA has. We are very fortunate to have such speakers available to us. Come and show your support with a larger attendance.]

What Did You See?
Fremont Peak
October 29, 1994
by Mark Wagner

The afternoon looked as if it would lead to one of the best observing evenings of the year. Occasional traces of clouds, warm weather, predicted cool night. The moisture should freeze out of the upper atmosphere and the coast was forecast to see low fog. We were ready.

Loaded the suburban with the Obsession 20" and 14.5", plenty of galaxies printed off of my new version of The Sky, hot coffee, sandwiches and enough clothing to set up in the tundra. A burger on the way down 101 and we were on our way up to Fremont Peak.

We arrived after an uneventful drive, to find Doug Ferrell, new SJAA member set up with the 10" clusterbuster dob. The breeze along the ridge was cold in the shade, so he decided to join us with John Kuklewicz, who was already set up near the Coulter group campground. Jim "the Shadow" Bartolini was set up with what once was a Coulter 10" that has been modified beyond recognition. Jim is a master of enhancement. There was one other large aperture dob with an unidentified owner.

We set up and columnated, and began to realize the sky was not looking quite as wonderful as it had in San Jose. But, the fates are capricious on the Peak, so we sat back and waited for sundown. Soon, Crazy Ed Erbeck showed up, lugging the 17.5" Coulter in the back of his truck. The scope weighs so much, that when properly secured it adds a great deal of road-levelling stability to an all ready tight cornering vehicle, but the real treat is watching Ed lift it alone (grunt). After Ed, Alan Nelms pulled up and popped up his "little" 18" Obsession. We were ready.

Our observing party was eventually rounded out by a couple of guys from the Peninsula (San Francisco Astronomy Club) who were playing with a new 8" LX200 (they sure were having fun, first time at the Peak with a brand new toy), and a coupe guys by Ranger Rick's house doing CCD.

As the sky darkened, we began popping the brighter objects. M13, M31, M22, M15, the Ring, Alberio, all the tourist stops. Then we realized things were not looking so good. The transparency was poor. As dark settled in, we were limiting at high 12's for really "seeing" galaxies, and perhaps mid 12's at times for kinda finding faint stuff. Dean and Ed were looking at a faint galaxy cluster in Pegasus, which I had trouble seeing. I think Dean's scope was the only one with enough umph to pull those objects in. Adjusting for the poor seeing, we moved to the Veil Nebula with an OIII, impressive as always, but somewhat dimmed compared to good nights. We tilted our scopes down at caught NGC55 and NGC300 down low in the sough. Both are big objects. We scooted up to NGC253, another perennial favorite, shot up to the big planetary NGC246 and got the galaxy NGC255 in the same field of view (Ed astutely commented about the "depth of field, " one object being our galactic neighbor, while the galaxy was extremely distant). Cruise up to the emission nebula NGC281 in Cassiopeia, then over toward Triangulum to look at NGC672 and IC1727, two fairly large galaxies in one field of view at virtually right angles to each other. Over to NGC772 in Aries, another good size galaxy at mag 10.3.

Time for coffee and midnight meal, then on to the final stretch of the night. We slammed the H- Beta filter on the 20" and Dean nailed the Horsehead Nebula. If conditions had been better it would have been a great view, but one of the CCD boys put it into perspective, letting us know that being from the East Coast, where it is very difficult to see the Horsehead, this was great. I thought the view compare to what we got us the UHC a month before when conditions were really good. After the Horsehead, Dean jumped over to the California Nebula, which is a big bugger. In fact, we could only see parts of it filling the field of view, as we did not have a wide field eyepiece that would accept the 1.25"H-Beta. Aw, life's hard.

It felt as if the temp was going to start falling, and with the moon coming up in less than an hour, our party began to break up. We stretched our legs by walking over to the Observatory area, where Dean saw a bolide. Clouds were drifting through, making Rigel look like a photo of the Merope nebulosity. We walked back, packed and departed. The one thing we did not get to do that would have been unique, was to leave promptly at 2 AM so we could arrive back in San Jose again, at 2 AM (do to the time change). But, all things consider, even though we missed setting a new return trip time record, the night was reasonable, and everyone in attendance enjoyed the socializing and some observing.

Paul Mortfield Talks about Astrophotography With an Eight-Inch Schmidt Camera
by Bob Madden

At the general meeting on October 22, Paul Mortfield talked to a large group in attendance about his 8-inch, f-1.5, Schmidt camera set-up and how he took his beautifully crisp astrophotographs. Paul uses an 8-inch camera modified by Kevin Medlock of Epoch Instruments. Kevin's modifications have solved earlier problems of columnation and film holder focus. Paul showed photographs of the camera on a Parsec equatorial mount, guide scope connected to an autoguider. His emphasis is on a vibration free mounting system - use heavy duty equipment with vibration dampers on the mounting feet. It was clear that when Paul went to take astrophotographs, he planned to stay a while. Paul uses Pan Tech, hypered, film. Paul then illustrated the importance of correct installation and transport of the film on the film holder with single photographs where the stars were bloated on one side and pin-point sharp on the other side. Clearly Paul wanted to convey the message that you must learn how your equipment functions and to use it properly. There is definitely a learning period and ask for help from a good astrophotographer friend or group member.

Paul then showed some striking black and white (positive) images of objects he had photographed. Paul showed an image of the Helix nebula that contained an extra curl never before seen. When he sent it off to have the

See Camera on page 3

The Backyard Astronomer's G ide

Reviewed by Doug Ferrell

A book I have found to be useful is The Backyard Astronomer's Guide by Terence Dickinson and Alan Dyer (revised in 1994). This book covers a much broader range of topics from optics to observation. While both have very up to date information, I feel that The Backyard Astronomer's Guide (TBAG) will remain useful for longer.

TBAG is divided into four major parts, the first of which is about equipment. There is a whole chapter dedicated to the joys of astronomy using binoculars, one on telescopes (of course), an excellent section discussing eyepieces, and finally a chapter for accessories of all other varieties. Dickinson and Dyer draw on their considerable experience to bring valuable insight to the reader at every turn. Useful comparison charts accompany well written text to guide astronomers of all types through the tangle of products which tantalize and tempt with shiny machined surfaces and slick ad copy. The authors appear to prefer high quality refractors and equitorial mounts to the ever-popular light buckets which dominate most star parties, though the bias is slight. Especially interesting is the list of popular myths about telescopes and observing. Each myth is carefully analyzed and unraveled, leaving only the naked truth to be seen by all.

Part two covers astronomical observation from the old fashioned but always handy naked eye, to the more modern and costly telescope. Starting with the most obvious and oft overlooked (if not cursed) objects (Sol and Luna) and moving on to the planets, the authors show the reader what to expect to see through an amateur telescope. There is a short chapter which covers sky atlases and navigation which leads into deep sky observation. Many wonderful color and monochrome photographs as well as sketches and sample journal entries are scattered through these chapters, filling a gap found in many similar books.

The third major part of TBAG discusses all of the basic ins and outs of astrophotography. The best cameras, film, filters, and other necessary accessories are covered as well as which telescopes and mounts are best for such purposes. Basic and advanced techniques for photographing constellations, the moon, planets, and deep sky objects are discussed. Tables of suggested exposure times for object/film type combinations help the novice get reasonable shots before becoming too frustrated with the long nights staring at a glowing reticle while others get to see all the ancient photons in real time. Again, loads of great amateur photographs fill this section.

The final section of Dickinson and Dyer's summary of our favorite hobby is very similar to the last part of ***Star Ware***. Lists of resources, organizations, and software are featured here. Short articles on polar alignment methods, telescope collimation (SCT and Newtonian) and maintenance, optical evaluation, a glossary, and a nice set of wide-field photo/finder chart combos for several regions of interesting sky round out the volume. In short, it is quite a book and I would recommend it to anyone seriously interested in amateur astronomy. It is available through various sources including local bookstores, astronomy stores, and mail order companies. It is a 295 page, large format, hardbound book and sells for around $40.

Russian Cosmonaut Dies

For those who might have missed it, cosmonaut Dr. Boris Yegorov (sometimes spelled Egorov) died about Sep 12 in his home in Moscow of an apparent heart attack. He was 58. He had been part of the three-man crew of "Voskhod" in October 1964.

Treasurer's report Oct. 22 1994
Jim Hodgers

Checkbook	$2041.16
Observatory Fund	6106.07
Ephemeris pool	252.48
Gregory Fund	341.60

+ interest from July, 1993

WIDE FIELD AND PLANETARY CAMERA-2 STATUS

November 1, 1994

The Jet Propulsion Laboratory's Wide Field and Planetary Camera-2 — the primary camera on board NASA's Hubble Space Telescope — has made the most accurate measurements yet of the distance to a remote galaxy in the Virgo cluster and, by implication, the rate at which the universe is expanding.

Images of Messier 100, a large spiral galaxy in the constellation Virgo, revealed bright Cepheid stars which were used to pinpoint the galaxy's distance at approximately 56 million light-years from Earth. From these calculations an international team of astronomers concluded that the universe is expanding at a rate of 80 kilometers per megaparsec (1 megaparsec equals 3.26 million light-years) with an estimated uncertainty of plus or minus 17 kilometers per second. That measurement suggests that M100 is receding from Earth at about 3 million miles per hour — fast enough to race past the continental United States in just three seconds.

In addition to these calculations, the astronomers reported in the Oct. 27 issue of Nature that the universe is probably younger than was previously thought, being somewhere between 8 billion and 12 billion years old, depending on the density of matter that exists in the universe. Density measurements are another key science investigation under way using the telescope.

Hubble's vantage point above the distortion of Earth's atmosphere allowed scientists to make the observations relatively quickly and easily. The results of a 60-day observation window yielded the discovery of 20 bright variable stars in M100, which has led the team to believe they will be able to observe galaxies as far as 150 million light-years away using the telescope's primary camera.

All other telescope observation subsystems continue to perform well. Hubble's Wide Field and Planetary Camera-2 has been making observations of other science targets, such as recent images of Neptune and of Saturn and its moon Titan.

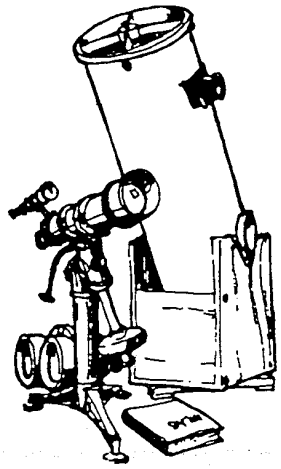
1994 SJAA Calendar

General Meeting		Houge Park Star Party	Observational Astronomy Class
Dec	17	9	no meeting

1994 SJAA Calendar

Jan	14	6	25
Feb	11	3	18
Mar	11	3	18
Apr	8	7	15

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	10/3/94
3	4"	Quantum	Jim Hodgers	1/8/95
5	60 mm	Refractor	---------->	available
6	C-8	Celestron	Bob Brauer	11/3/94
7	12-1/2"	Dobson	Tom Rice	Indefinite
8	14"	Dobson	Ken St George	12/1/94
14	6"	Newt/P mount	---------->	available
15	8"	Dobson	Bob Elsberry	12/21/94
18	8"	Newt/P Mount	Jerry Lovelace	10/6/94
19(B)	6"	Newt/P mount	---------->	available
20	4-1/4"	Dobson	---------->	available
21	10"	Dobson	Chung-Lin Lee	11/18/94
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)

C8 - 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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Celestron - Ultima 8-inch, computer drive, three lenses, a reducer corrector, carring case and other small ites. Original price $2,500, asking $1800. Excellent condition. Call Theresa at:
(W) (408) 279-8844
(H) (408) 370-6468 11/94

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.

Del Johnson Dropped m a note from Lesotho, Southern Africa. He mentioned that a school he is at just received a 486DX computer and he is looking for some neat astronomical software. Send it to:

Delwin R. Johnson
P.O. Box 32
Thaba Tseka, 550
Lesotho
Southern Africa

CELESTIAL CALENDAR
December1994

Lunar Phases	Date	Rise	Trans	Set
NM 15:54	02	06:30	11:06	17:10
FQ 13:06	09	11:57	17:38	23:41
FM 18:18	17	16:50	23:40	07:01
LQ 11:11	25	23:41	05:38	12:00
Nearer Planets				
Mercury	07	06:55	11:44	16:32
1.44 A.U.	17	07:33	12:13	16:53
Mag. -1.5	27	08:03	12:44	17:25
Venus	07	03:54	09:20	14:47
0.47 A.U.	17	03:42	09:06	14:29
Mag. -5.4	27	03:40	08:58	14:16
Mars	07	22:18	05:11	12:00
0.95 A.U.	17	21:50	04:41	11:28
Mag. -0.7	27	21:16	04:07	10:54
Jupiter	07	05:53	10:53	15:53
6.26 A.U.	17	05:24	10:22	15:21
Mag. -1.8	27	04:55	09:52	14:49
Saturn	07	12:08	17:37	23:05
9.95 A.U.	17	11:30	16:59	22:29
Mag. +1.1	27	10:52	16:23	21:53

SOL Star Type G2V VMag -26.72

RA	Dec				
16:58	-22:41	07	07:09	11:59	16:49
17:42	-23:23	17	07:16	12:04	16:51
18:27	-23:18	27	07:21	12:09	16:57

Astronomical Twilight

		Begin	End
JD 2,449,694	07	05:36	18:22
,704	17	05:43	18:25
,714	27	05:48	18:30

Siderial Time

Transit Right	07	00:00 = 04:55
Ascension at	17	00:00 = 05:35
Local Midnight	27	00:00 = 06:14

Darkest Saturday Night: December 3

Sunset	16:50
Twilight End	18:22
Moon Set	17:59
Dawn Next Morning	

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

Comet Comments
by Don Machholz

One returning comet has been recovered while a new one has been discovered. Mean while, Periodic Comet Borrelly moves rapidly north in our morning sky. It should be visible in binoculars.

I have recently finished writing a book about the Messier Marathon. containing 100 pages and over 125 finder charts, its chapters cover Charles Messier, his catalogue, and the Marathon. The atlas portion helps the observer locate every Messier Object and can be used any night of the year. You can receive a copy of "Messier Marathon Observer's Guide by sending $12.00 (CA residents add $0.87 for sales tax) Plus $2.00 postage to MakeWood Products, P.O. Box 1716, Colfax, CA. 95173.

Periodic Comet Longmore (1994q): Jim Scotti recovered this comet on Sept. 27 from Kitt Peak. The comet appeared stellar at magnitude 20.5. This object orbits the sun every 7.0 years and will remain faint.

Comet Machholz (1994r): I visually discovered this comet on the morning of October 8 with my 10-inch f/3.8 reflector at 36X. This find came 55.25 search hours and 34 comet hunting sessions after my previous find eight weeks earlier. Since I began comet hunting on Jan. 1, 1975, I've accumulated 5589 hours so my average number of hours per comet discovery is now 621. This compares to an average of 423 hours (mean = 220 hours) per find for the 60 visual comet discoveries during the years 1975-1990. Although 35% of my time is spent sweeping the evening sky, all of my finds have been in the morning sky.

This comet was closest to the sun on Oct. 3 at 1.84 AU. Its highly inclined orbit moves from north to south. It should be visible in amateur scopes through the end of the year.

EPHEMERIDES

PERIODIC COMET BORRELLY (1994l)

DATE(00UT)	R.A.(2000)	DEC	EL	SKY	MAG
11-24	08h39.2m	+30d57'	118d	M	7.6
11-29	08h51.5m	+34d59'	120d	M	7.7
12-04	09h03.2m	+39d05'	122d	M	7.7
12-09	09h14.3m	+43d09'	125d	M	7.8
12-14	09h24.4m	+47d06'	127d	M	7.9
12-19	09h33.5m	+50d51'	129d	M	8.0
12-24	09h41.1m	+54d20'	130d	M	8.2
12-29	09h47.0m	+57d30'	131d	M	8.4
01-03	09h51.0m	+60d18'	132d	M	8.5
01-08	09h52.9m	+62d44'	132d	M	8.7
01-13	09h52.4m	+64d46	131d	M	8.9

COMET MACHHOLZ (1994r)

DATE(00UT)	R.A.(2000)	DEC	EL	SKY	MAG
11-24	05h20.1m	+40d30'	153d	M	10.5
11-29	04h52.0m	+35d32'	164d	M	10.5
12-04	04h27.1m	+30d07'	172d	M	10.6
12-09	04h05.7m	+24d38'	167d	E	10.7
12-14	03h48.1m	+19d25'	157d	E	10.8
12-19	03h33.8m	+14d43'	148d	E	11.0
12-24	03h22.5m	+10d38'	138d	E	11.3
12-29	03h13.6m	+07d10'	130d	E	11.5
01-03	03h06.9m	+04d17'	122d	E	11.7
01-08	03h01.9m	+01d52'	115d	E	11.9
01-13	02h58.4m	-00d07'	109d	E	12.2

ORBITAL ELEMENTS

1.3651 AU on Nov. 01.5, 1994	Perihelion	1.8443 AU on Oct. 03.4, 1994	
353.359 degrees	Argument of perihelion	143.261 degrees	
075.424 degrees	Ascending Node	249.853 degrees	
030.271 degrees	Inclination	101.826 degrees	
0.6228036 = e, 6.88 years.	Eccentricity/ Per.	1.0	---
MPC 18259	Source of 2000 Elements	MPC 24082	

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