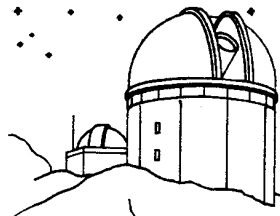


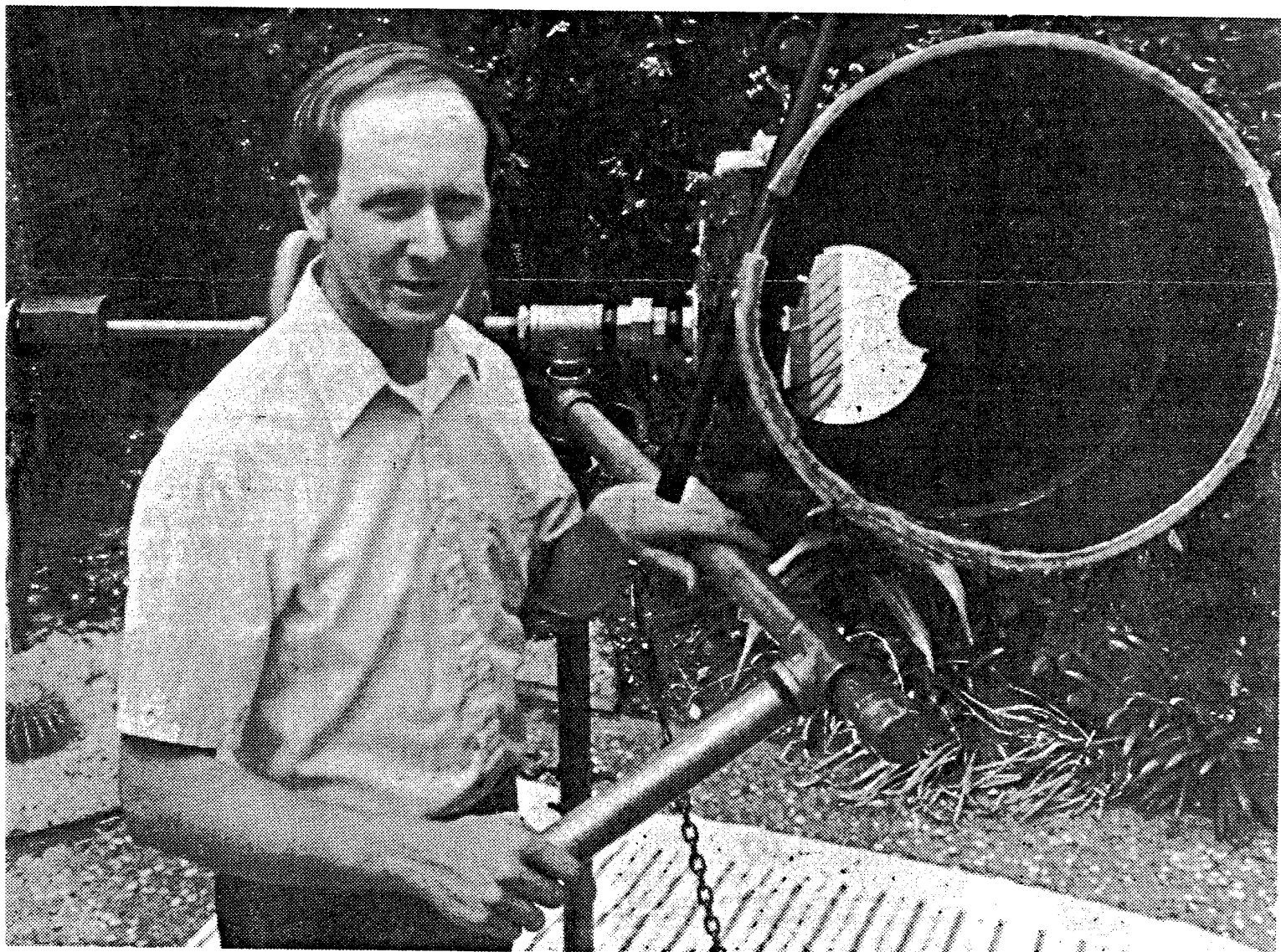
EPHEMERIS

OF THE SAN JOSE ASTRONOMICAL ASSOCIATION



JULY 1985

Amateur stargazer finds his 2nd comet



Times Tribune photo by Norbert von der Groeben

THE SJAA'S OWN DONALD MACHHOLZ CAN NOW SAY HE HAS DISCOVERED TWO COMETS, AND WILL HAVE THE HONOR OF HAVING THE SECOND ONE, IDENTIFIED BY HIS NAME.

THIS MONTH'S EPHEMERIS HAS BEEN DEVOTED TO COVERING THE EVENTS LEADING TO THE DISCOVERY OF COMET 1985e. INCLUDING INFORMATION ABOUT HOW YOU CAN FIND IT.

 * **** JULY 20TH **** *
 ANNUAL CLUB PICNIC AND EVENING STAR PARTY
 * AT GRANT RANCH COUNTY PARK *
 * NOON TILL ??? *
 * *
 * **** AUGUST 3RD **** *
 * ERNEST W. PIINI PRESENTS: *
 * NEW GUINEA TOTAL ECLIPSE *
 * 8 PM *
 * *****

JULY 2 FULL MOON
 JULY 6 NO ACTIVITY SCHEDULED DUE TO THE HOLIDAY WEEKEND.
 JULY 10 THIRD QUARTER MOON
 JULY 12/13 STAR PARTY AT YOSEMITE NATIONAL PARK, GLACIER POINT. MEMBERS OF THE SJAA WILL BE SET UP AT GLACIER POINT FOR FRIDAY AND SATURDAY EVENING STAR PARTIES.
 JULY 13 THERE WILL ALSO BE A CLOSER-TO-HOME STAR PARTY THIS SATURDAY NITE AT FREMONT PEAK STATE PARK. DUSK TILL DAWN.
 JULY 17 NEW MOON
 JULY 20 ANNUAL CLUB PICNIC AND EVENING STAR PARTY AT GRANT RANCH COUNTY PARK. PICNIC STARTS AT NOON WITH AN EVENING STAR PARTY TO FOLLOW. STAR PARTY AFTERWARDS MAY BE HELD AT BOTH UPPER AND LOWER OBSERVING SITES.
 JULY 24 FIRST QUARTER MOON
 JULY 27 INDOOR STARPARTY AT THE LOS GATOS RED CROSS BUILDING. DOORS OPEN AT 8 PM.
 JULY 31 FULL MOON
 AUGUST 3 GENERAL MEETING, 8 PM AT THE LOS GATOS RED CROSS BUILDING. ERNEST W. PIINI WILL PROVIDE COVERAGE OF LAST YEARS TOTAL SOLAR ECLIPSE THAT PASSED THROUGH NEW GUINEA; THE EAST INDIES.
 AUGUST 8 THIRD QUARTER MOON
 AUGUST 10 FREMONT PEAK STAR PARTY. DUSK TILL DAWN.
 AUGUST 16 NEW MOON

FIELD OF VIEW
 BY: JOHN GLEASON

YOSEMITE UPDATE

Everything is set for the July 12/13 Glacier Point star party. Members who are attending will be arriving both Friday and Saturday. Remember to get entrance fee and camping waiver, please show your telescope at any of the park entrances. Probably not all of the park employees who staff the entrances will know about what's going on, but they will let you by anyway. Just show them your telescope and invite them up to take a look later.



At Bridalveil, check in with the campground ranger to find out where the SJAA group has been assigned. Since we have such a large group this year, (over 30 carloads) we may have some space restrictions at Bridalveil. Several members have indicated a preference for the campground behind the ranger station at the point. But due to a projected water shortage, everyone is asked to stay at Bridalveil.

Our large telescopes will be allowed to remain at the point, as long as they do not block any of the pathways around the area directly in front of the gift shop. Everyone is reminded that they will not be able to leave their autos by their equipment, but will be allowed to drive up and off-load equipment. Several members will be bringing extension cords and connection boxes so that we can access AC power for our equipment. But remember that loose cords can be tripped over easily in the dark.

Telescopes will be set-up in the early evening. SJAA members should be thinking about a short observing program to follow for the general public. We don't want every telescope pointed at M-13 or Saturn! The following suggestions should be helpful.

On Saturday evening the park service will put on a more formal program which will include a slide show.

A list of 10 or 12 of your favorite objects is recommended. It is also good to have additional information about the objects. Avoid faint, fuzzy, nothings (FFN's). The Summer skies are filled with bright deep sky objects to select from. Use eyepieces that have long eye-relief. This makes it relatively easy for children to look through the telescope. You may not wish to use your expensive Nagler's, especially with inexperienced observers present. A small box that children can stand on is probably the best accessory that you can bring. If this is impractical, then we should remember to keep several telescopes low enough to the ground to avoid the inevitable grabbing and pulling of telescopes to get a look. A child's first look through a telescope will probably be remembered for many years. This is how many of today's astronomers, astronauts, and bulletin editors got started. See you there!

CLUB TELESCOPES

The SJAA maintains three telescopes for the use by its members. Loan periods are two months, and all arrangements must be made between the person wanting to borrow the scope and the person having it. If your two months are up and no one indicated an interest in borrowing the telescope at that time, it's yours until someone does. All that is asked is that a board member or bulletin editor is notified when a telescope changes hands.

CONCERNING WANT ADS: All SJAA members and friends may place astronomical related ads in the Ephemeris free of charge. All ads will run for two months unless the editor is notified otherwise. Please submit by sending to "EPHEMERIS", 5361 Port Sailwood Dr., Newark, Ca. 94560.

THE DISCOVERY OF COMET MACHHOLZ - 1985e
BY: DON MACHHOLZ

Now fully dressed, I opened up the back window of the camper shell and, leaving behind my sleeping wife Laura, I stepped out into the cold air. The moon was still up and casting light upon the landscape. Soon it would be setting, and I would begin searching for a new comet.

This weekend had been a tiring but refreshing one at the Riverside Telescope Maker's Conference at Camp Oaks, near Big Bear City in southern California. Over 1300 individuals had attended the Memorial Weekend gathering, held every year since 1969. Talk had been about telescopes, photography, computers, and Halley's Comet, which most of us will be observing before the end of the year.

I walked down the dirt road, known as "telescope alley", and onto the telescope field. Many of the hundred telescopes were gone, their owners having already left or packed for an early getaway in a few hours. Those telescopes remaining were being put to good use, some searching for faint galaxies or nebulae, others being used to show heavenly wonders to friends. Many new friendships are made each year at the Conference, often under these dark skies, where faces are not seen, and we learn to recognize the voice. Here is a place where astronomy is both enjoyed and shared.

I turned and started walking back toward telescope alley, my telescope was set up near the end of the alley, among the bushes on the right. The instrument is a reflecting type of telescope, it uses a mirror ten inches across which focuses at a distance of 38.2 inches, meaning a focal ratio of 3.82. This is a short ratio of focal length to mirror diameter, but allows for a wide field of view. In this instance, however, I had placed a cardboard cutout in the eyepiece giving a field of view 1.6 degrees square. Telescopes usually have round fields, but I believe a square field has some advantages for comet hunting. The eyepiece gives a magnification of 32. While optics were commercially made, the rest of the telescope is homemade. It's first construction took place in 1975, it was redesigned in July, 1981. The complete optical system is now mounted on an altazimuth mount made of lead pipes. With this type of mount I can scan (or sweep) parallel to the horizon. This allows for more efficient comet hunting since comets are often found near the horizon.

Three years ago, at my first trip to Riverside, this telescope won the Warren Estes Award, given each year for a telescope made from simple materials. This year, I did not enter the telescope. I had brought it only so that I could continue my comet seeking while on my four day vacation.

At 1:25 on this morning, May 27, 1985, I began comet hunting Session No. 1385. This started as any other, with anticipation and excitement, because I never know just what I will find while comet hunting. Two mornings ago I had picked up a very faint nebula which I had never seen before.

My first sweep was at an altitude of about 45 degrees. My goal was to cover the eastern sky from the celestial equator to 40 degrees north. This required peering through the telescope as I pushed it northward to about 40 degrees north. During that time I would be looking for anything faint and fuzzy gliding through the field of view. Such an object could be a new comet, more often these would be clusters, nebulae, galaxies or small groups of faint stars.

Nearly eight years before, on the morning of Sept. 12, 1978, I uncovered an object which turned out to be a comet. Being newly discovered, it was named Comet Machholz, another designation being "1978L". It was the twelfth comet recovered or discovered in 1978. That find, for which I used many parts of my present 10-inch telescope, had taken 1700 hours of searching over more than three and a half years. The comet was faint when found and did not get much brighter after discovery. I was able to observe it for one month before it disappeared below my southern horizon. It is in a type of orbit by which it will never return.

My first comet was found from a mountain called Loma Prieta, in the Santa Cruz mountains, 22 minutes south of my home in San Jose. But this morning I am over 400 miles south of my home, at an elevation of 7700 feet. The telescopic views were great. I swept up the Veil Nebula in Cygnus with all its delicate beauty. I also saw a globular cluster named NGC 6740 and a wonderful open star cluster known as M11. With each sweep I moved closer and closer to the horizon, which, ideally, I would reach just as the sky was beginning to brighten.

Shortly after 3:00 I stepped back from the telescope, removed my eyepatch, put on my glasses and looked around the night sky. This was a perfect night for comet hunting. Being far from city lights, the stars and Milky Way stood out in high contrast to the dark background. Only under such conditions can astronomers carry out many of their programs. I commented to my friend, Darwin Poulos, on the darkness of the sky. He was now observing with his 8-inch reflector about 20 yards from me, examining objects in the Southern Milky Way. He was having a good night too.

As I continued to sweep I observed a faint galaxy known as NGC 185, moving over a field I also examined NGC 147. Because of the lights of San Jose, I do not often see these two objects from my site at Loma Prieta. But they were easily visible from here. On the next sweep I saw the majestic Andromeda galaxy, it more than filled my field of view. But I could not gaze for long, I had to keep sweeping, as dawn was approaching.

About three sweeps later, at 4:13 a.m., I picked up a fuzzy object, not too faint, which suddenly aroused my suspicion. It was in a part of the sky where I knew there were no galaxies or clusters, and started my work of determining the nature of the object.

Foremost, I had to know exactly where my telescope was pointed. This is needed for two reasons. First, to check my charts to see if there is a galaxy or cluster at this position. Secondly, to report a comet I need to know exactly where it is so that others can confirm it.

This required some quick work, because dawn was approaching and this part of the sky, in the constellation Pisces, contains few reference stars. While comparing the finder and main telescope fields of view with my star charts, I mentioned to Darwin "I think I have something here, and I don't think it's a galaxy."

The Skalanate Pleso chart showed no known objects and I plotted a small pencil mark at it's position on the map. Next I had to check for motion. A comet will move against the background stars, so I drew a map and hoped to detect movement. Meanwhile I made a quick measurement of its position and checked my more extensive catalog. It did not list any known object in that position.

With dawn nearly upon us I made a few more checks. A barlow lens, doubling the magnification, showed the object to be fuzzy and elongated, and not a small group of stars. Next I tried a "Comet filter" (with it some comets will appear more visible and the background is darkened. Any other object will appear fainter). This object was more visible.

By now it was difficult to see the object, as the sky was rapidly brightening. Furthermore, I had not detected movement. The 27° temperature was nipping at my hands because I had removed my gloves when I spotted the object some 20 minutes earlier. I felt quite sure that I had discovered a comet, and yet the lack of motion prevented me from being absolutely certain. I had searched 1742 hours since my first comet find.

I went to the truck and woke up Laura. "Laura", I said, "I think I found a comet." She woke up immediately.

Reporting the comet was nearly as hard as finding it. I merely had to call the Smithsonian Astrophysical Observatory in Cambridge, Mass., the clearing house for comet discoveries. We knew of only one phone at the camp, a pay phone at Coombs Lodge. After writing up the telegram and walking a quarter mile to the phone, I had trouble getting through to the operator. The phone finally jammed and we had to move on.

We tried looking for a few of the comet hunters there but at 5 a.m., they could not be found. Perhaps they would know of any known periodic comets in that area of the sky. Or, perhaps they would know of recent discovery in this region, I could hardly believe that a bright comet of magnitude 9.3 would still be undiscovered. Unable to find anyone, we had no choice but to pack up and go to our motel in Big Bear City, ten miles away.

Following an hour of telescope disassembly, Darwin's car occasionally quitting, and a hurried drive, we arrived at the motel 6 lobby. Our luck was unchanged. Western Union, which would send the telegram to the Smithsonian, was not answering the phones. Meanwhile, this being a holiday, no one was at the Smithsonian Astrophysical Observatory to take the discovery message.

I tried to call the Smithsonian director, Dr. Brian Marsden, at home, but his number was not listed. Suddenly, among my notes Laura found his home phone number. I tried it.

Dr. Marsden said he had no reports of a comet being found, and he could not recall any known periodic comets in the region. He took my message and said he'll try to get someone to confirm that this was indeed a new comet. I said I'll try to do the same.

Then it was back to our rooms for a quick shower, packing and then out to breakfast. Our nine hour drive home brought us from the clear morning skies of Big Bear to the cloudy evening skies of San Jose. Upon arriving home I called Gerry Rattley of Phoenix, Arizona, Jack Marling of Livermore, California, and the observers at nearby Lick Observatory, asking them to observe the object and confirm it.

The next morning saw Rich Page, Laura and I on Loma Prieta, sitting in the clouds. Finally it began to clear, and near 3:30 a.m., we set up our telescopes and began to search. After a few minutes, I found it one and one-half degrees ENE of the previous day's position. It was a comet! Rich then found it too, and we showed it to Laura. We all were happy!

Meanwhile, Charles Morris and Alan Hale of the Los Angeles area had received word from the SAO via Stephen Edberg of my possible discovery. Following only a few hours of sleep, they went to a nearby observing site and confirmed the existence of the comet.

A preliminary orbit shows the comet will be nearest the sun on June 28, 1985 at a distance of only 10 million miles. Until June 15 it should continue to brighten in the morning sky, then we will lose it in the solar glare. About July 10 it will emerge into our evening sky, then fade rapidly.

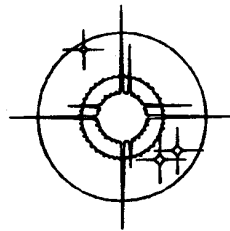
According to my recent study: "A Decade of Comets", now in booklet form, I found that none of the comets found by amateurs during the past decade came as close to the sun as this comet. And, while this might be one of the brightest comets in several years, for much of the time it will be too close to the sun for easy observation from earth.

Don Machholz (408) 448-7077

COMET COMMENTS BY: DON MACHHOLZ

One comet has been recovered and one new comet has been discovered. While Comet Shoemaker fades in our southern evening sky, and Comet Giacobini-Zinner (1984e) is brightening in the morning sky, Halley's Comet is coming out from behind the sun. In our "What Goes Around Comes Around" section we'll examine its visit of 1835, plus we'll look at its positions for the next month.

Periodic Comet Tsuchinshan 2 (1985d): From Mt. Palomar, J. Gibson recovered this faint comet on April 10. It was quite faint (mag. 22) and will remain fainter than mag. 16 during this visit.



Comet Machholz (1985e): The first comet to be discovered this year was found by myself on the morning of May 27. I was comet hunting from the Riverside Telescope Makers Conference near Big Bear City, Calif. This find occurred 1724 search hours after my first comet discovery: Comet 19781. At discovery comet 1985e was low in the eastern pre-dawn sky, at mag. 9.3.

A preliminary orbit indicates the comet will be closest the sun (0.107 AU) on June 28. This is the smallest perihelion passage of any comet in four years. If the comet survives this hot ordeal, it will speed into our evening sky, appearing during the second week of July. Comet Machholz will then fade to mag. 11 during the following month.

EPHEMERIDES

COMET MACHHOLZ (1985e)

DATE	R.A. (1950)	DEC	ELONG.	MAG.
06-28	06h 17.8m	+21° 54'	2°	1.5
06-30	06h 56.3m	+21° 35'	6°	1.7
07-02	07h 27.9m	+21° 46'	11°	3.1
07-04	07h 55.3m	+21° 59'	15°	4.2
07-06	08h 21.3m	+22° 05'	19°	4.9
07-08	08h 46.9m	+21° 59'	23°	5.5
07-10	09h 12.3m	+21° 41'	27°	5.9
07-12	09h 37.7m	+21° 09'	31°	6.3
07-14	10h 02.6m	+20° 25'	35°	6.7
07-16	10h 26.9m	+19° 28'	39°	7.0
07-18	10h 50.2m	+18° 21'	43°	7.3
07-20	11h 12.3m	+17° 07'	47°	7.6
07-22	11h 33.1m	+15° 48'	50°	7.9
07-24	11h 52.5m	+14° 26'	53°	8.1
07-26	12h 10.4m	+13° 05'	56°	8.4
07-28	12h 27.0m	+11° 44'	58°	8.7

On June 28 this comet will be closest the sun at a distance of only 10 million miles. If it survives the passage, it will swing into our evening sky and dim rapidly. Assuming the magnitude holds up, the comet may be visible in binoculars low in the west near the time of astronomical twilight. These positions are from a rough orbit, the actual position may differ by a few degrees. You may call me for refined positions if you are unable to find it. The comet will be closest the earth (at 0.82 AU) on July 16.

PERIODIC COMET GIACONBINI-ZINNER (1984e)

DATE	R.A. (1950)	DEC	ELONG.	MAG.
06-24	21h 45.6m	+45° 25'	95°	11.3
06-29	22h 01.3m	+48° 04'	94°	11.0
07-04	22h 19.3m	+50° 39'	93°	10.7
07-09	22h 40.0m	+53° 06'	92°	10.5
07-14	23h 04.3m	+55° 21'	91°	10.2
07-19	23h 32.7m	+57° 17'	89°	9.9
07-24	00h 05.9m	+58° 47'	88°	9.6
07-29	00h 44.1m	+59° 40'	86°	9.4
08-03	01h 26.4m	+59° 42'	85°	9.1
08-08	02h 10.9m	+58° 42'	83°	8.9

This comet continues to brighten in the morning sky. The name is pronounced "Jaw-ka-bini-Zin-ner". This comet was first found in 1900, missed in 1907, and rediscovered in 1913. The USA is sending a space probe (ISEE) to fly through its tail on Sept. 11. The magnitudes seem to be correct, judging from early estimates.

WHAT GOES AROUND COMES AROUND--HALLEY'S

This appearance of Halley's Comet is the fourth since it was recovered on Christmas Night 1758. In May we discussed the 1910 appearance of Halley's. This month we'll discuss the apparition of 1835.

The comet was recovered Aug. 6, 1835 by the Frenchman M. Dumouchel, from near Rome. At that time the comet was near the star Aldebaran, in the morning sky. As it neared the sun it developed a major tail, reaching naked eye brightness by late September. Following its closest approach to the sun (Nov. 16), the comet became a naked eye object again, this time in the southern Hemisphere (sound familiar?)

Halley's Comet In 1835

1835/6									
Date	R.A. (1950)	Dec.	Elong.	Sky	Mag.	Dis.	Sun & Earth		
08-10	05h 38m	+22° 35'	53°	Morn	7.1	176.	216.		
08-30	05h 56m	+24° 35'	69°	Morn	5.8	149.	155.		
09-19	06h 17m	+29° 11'	83°	Morn	3.9	121.	88.		
10-09	08h 56m	+58° 15'	81°	Morn	0.0	93.	23.		
10-29	17h 20m	-06° 33'	46°	Even	1.1	66.	62.		
11-18	17h 14m	-16° 07'	23°	Even	2.0	55.	126.		
12-08	16h 50m	-20° 43'	4°	Morn	3.3	70.	161.		
12-28	16h 30m	-24° 19'	28°	Morn	4.5	97.	168.		
01-17	16h 06m	-27° 49'	53°	Morn	5.2	125.	156.		
02-06	15h 23m	-31° 20'	82°	Morn	5.6	153.	137.		
02-26	14h 04m	-32° 57'	116°	Morn	5.9	180.	119.		
03-17	12h 19m	-28° 03'	150°	Morn	6.3	205.	120.		
04-06	11h 02m	-18° 46'	148°	Even	7.1	230.	146.		
04-26	10h 25m	-11° 38'	123°	Even	8.0	254.	187.		
05-16	10h 12m	-07° 35'	101°	Even	8.9	276.	244.		

During the next month many amateurs will try to recover Halley's Comet as it emerges from behind the sun and into the morning sky. Listed below are its positions, and magnitudes.

Date	RA (1950)	Dec	Mag.	Elong.	RA (2000)	Dec
07-09	05h 37.3m	+18° 25.4'	14.5	22.2°	05h 40.2m	+18° 27.2'
07-14	05h 40.6m	+18° 32.2'	14.4	26.1°	05h 43.5m	+18° 33.6'
07-19	05h 43.9m	+18° 38.5'	14.2	30.0°	05h 46.8m	+18° 39.7'
07-24	05h 47.1m	+18° 44.3'	14.1	33.9°	05h 50.5m	+18° 45.3'
07-29	05h 50.3m	+18° 49.8'	13.9	37.9°	05h 53.2m	+18° 50.5'

Although faint and not far from the sun as seen from earth, this difficult object will become better placed as summer progresses. Find a dark site with a low eastern horizon and give this one a try. The magnitude estimates are based on the assumption that the comet, slightly fainter than scheduled when last seen in April, will surge somewhat as the coma more fully develops. Let's see what happens.

COMET MACHHOLZ - 1985e

A lot of material in this month's Ephemeris covers the recent discovery of comet 1985e by our own Don Machholz. And rather than go into a lot of details myself, Don has provided us with "play by play" coverage so to speak about his discovery. I am certain that we are all very proud to have Don as a member of our association, and want to extend our sincere CONGRATULATIONS! TAKE A BOW! NICE GOING! BRAVO! WELL DONE! GOOD SHOW!

SOUTH PACIFIC COMET TRIP

Lee Bonneau at Foothill College is coordinating a 21 day "South Pacific Discovery" trip to view Halley's. The comet will make its closest approach during the early spring of 1986. Here, the comet will only be 17" above the southeastern horizon and competing with the early dawn. Thus observers at our latitude will not have a good opportunity for viewing. Lee writes; "Halley's comet will be visible to us during the journey from all areas we visit, however we have selected Alice Springs, almost exactly in the center of Australia for our viewing spot, considered by most astronomers to be one of the best locations on earth for viewing the comet." This tour will also be available as a Special Projects Class through Foothill College in Los Altos Hills for credit of 1,2 or 3 units, depending on your activities and involvement.

There is also a possibility that any of the SJAA members who are interested in assisting with telescopes and/or astrophotography, can receive up to \$1000 discount from the tour price of \$2895.

If you are interested, and have additional questions, then please contact Lee at (415) 960-4288 (work) or (408) 446-0356 (home).

NEW TREASURER

Long time member, Jack Peterson has graciously accepted the position of club treasurer, replacing Bob Fingerhut who is assuming full time duty as our club President. Bob will be working closely with Jack during this time of membership renewals. Good luck Jack!

MEMBERSHIP RENEWAL

A number of members have not paid their annual dues yet. In fact, only about 50% of the membership have renewed as of the printing of this bulletin.

August will be a cut-off date for current members and bulletin subscribers. I plan to stamp "Last Issue" in the August Ephemeris. Please get your renewals into Jack Peterson. Jack's address is: 1840 Yosemite Dr., Milpitas, CA. 95035. (408) 262-1457. If you elect to send them to Bob Fingerhut, that will be okay too, since Bob will be helping Jack with the new treasures duties.

ANNUAL ASSOCIATION PICNIC AND INSTALLATION OF OFFICERS

Association members old and new will not want to miss the SJAA's annual Picnic. This years picnic will be held at Grant Ranch county park with a star party to follow. So come on out! The SJAA will provide the burgers and hot dogs. Bring your own soft drinks and condiments. Installation of new officers will follow. Follow the directions in this months Ephemeris to get to Grant Ranch park. Bring your telescope for an evening star party. Picnic begins at 12 p.m., Star Party at dusk.

HOT TIME AT THE PEAK

It was another one of those sweltering star parties at Fremont Peak the weekend of July 15th. 90° temperatures literally melted the coatings off all those black painted telescopes. The night wasn't much better either, with the temp only dropping to 78° by 3 a.m. It was already back to 80° by 7:30 a.m. Sunday morning!

The sky suffered from poor transparency and poor seeing due to an off-shore flow of warm air pouring over the Peak. Cold camera astrophotography was hampered by the high temps also, with dry ice evaporating away twice as fast as normal.

Bob Fingerhut was able to use his 16" telescope for the first time for astrophotography. We'll be looking forward to viewing these at one of our next Indoor Star Parties.

A whole host of amateurs were present at the Peak this weekend, but quite honestly you editor felt that the night time temperatures were a little too high for comfortable viewing. Perhaps if the seeing had been better.....

BAUMGARDT PHOTOGRAPHS ROCKETS

The spectacular duel rocket launching, witnessed by thousands at the Riverside Telescope Makers Conference were recorded by SJAA member Jim Baumgardt. Jim tells me that the slides are "fantastic", and that he has sent them to Sky and Telescope. I am looking forward to seeing them on the magazines front cover Jim!

PS: Maybe Jim should have sent them to Aviation Week instead.

SJAA CONTRIBUTORS FOR ASTRONOMY MAGAZINE

Four SJAA members have astrophotography published in the July issue of Astronomy. Look for photography by Jack Marling, Jim Baumgardt, Bob Fingerhut, and John Gleason. This has to be some kind of record for the SJAA. Also, all of the contributors will be at the Yosemite star party July 13th, and will be available to sign autographs.

CLUB TELESCOPES

Your Editor needs to know where the club telescopes are, so that he can publish this information in the Ephemeris. Please contact me if you have the club 14", 6", or 12" telescope. THX.



STARGAZER FINDS HIS SECOND COMET
BY: DAVID SCHRIEBERG
Mercury News Staff Writer

It will never be as famous as Halley's Comet. It won't entice droves of amateur and professional sky watchers to scan the heavens in the middle of the night.

As proud as he is of his discovery, Donald Machholz, 32, doesn't expect the second Comet Machholz to be tripping off the tongues of comet watchers around the globe.

In fact, Machholz, an assembly worker at a local fiber optics company, couldn't believe he had discovered anything new when he detected a comet at 4:13 a.m. on May 27 through his homemade, cardboard-tube telescope. Only after it was certified a day later by astronomers in Cambridge, Mass., did he accept the fact that he'd become the first person to discover a new comet in 1985 and one of the handful of Americans to find more than one comet in a lifetime.

"I said: 'Hey, I think I've got something here,'" Machholz said Monday, recalling the moment he first noticed the fuzzy object that has a diameter of about one-tenth that of the moon. It was just east of the group of stars known as Pegasus and heading toward Pisces.

"There was nothing that should be in that area. No known comets," he said.

His discovery became official last week when the Central Bureau of Astronomical Telegrams in Massachusetts verified that he was the first to report seeing the comet. On Monday, Machholz received a card formally announcing that the sighting of Comet Machholz -- or 1985E as it is scientifically labeled -- had been confirmed by other observers.

"Any time a new comet is discovered, it's of value," explained Daniel Green, assistant director of the Cambridge bureau, which verifies and announces the discovery of new comets to professional and amateur astronomers around the world. "Astronomy is one of the few sciences where amateurs can still contribute significantly to the science."

Machholz is not a newcomer to comet history. In 1978, he discovered his first "dirty snowball," as he describes the collection of water, ice, dust, dirt, gasses and chemicals that make up comets, after scanning the sky for 1,700 hours. Seven years later, after another 1,742 hours and 45 minutes of searching, he turned up the second and more valuable of his discoveries.

"The earlier one wasn't that important to science," he said of the first comet to bear his name, which nevertheless won him plenty of attention from the local media and a story in People magazine. "Scientifically, this one can be studied more than the last one."

Although he called the later Comet Machholz "a typical, average comet," Green confirmed Monday that it holds particular interest because it will hurtle as close as 10 million miles away from the sun. Comets travel that close to the sun only about once every five years.

There will be a time when it might be visible to the naked eye. In mid-July, just before the comet can no longer be spotted, Machholz believes an observer will be able to see it without a telescope from a completely dark location.

But his comet won't be around for long. It may disappear from telescopic view for about three weeks, from mid-June to early July, because of its proximity to the sun. After that, it will be too faint to be seen anymore," said Machholz. "The largest (professional) telescopes can watch it for several months, but will probably be occupied with others," including Halley's Comet.

Until astronomers have charted its path, which they can do after further sightings, they won't know whether Comet Machholz will appear at regular intervals or disappear from the sky forever, as his first discovery did.

Machholz found the second comet as he was scanning the sky from atop a 7,700-foot mountain near Riverside, where he was attending a telescope makers' conference. The celestial traveler was burning so brightly that he was sure one of thousands of other comet watchers around the world would have spotted it first.

"I thought I must be the 10th person to see it," he recalled Monday. "There were 10 days when any comet hunters, if they'd been scanning the area, could have found it."

But until it was confirmed by the group on Massachusetts, he didn't tell many of his amateur astronomer colleagues.

Machholz, a tall, sandy-haired native of Virginia, began serious comet hunting in 1975, after finishing a three-year stint in the Army. It began as a challenge: "I decided to search and search and search. I figured once I began, I could find a comet."

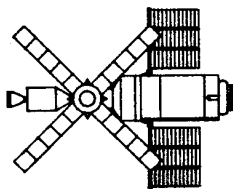
The search ment - and still means - crawling out of bed 100 clear, moonless mornings a year shortly after midnight and traveling to the Santa Cruz Mountains for sessions that last two to three hours. Sometimes his wife keeps him company while he methodically scans a pre-selected section of the sky. They return to their San Jose home in time for him to start work by 6:30 a.m.

And it's not a lucrative hobby, either. He spent about \$500 on his telescope and hundreds of dollars more on a book he published himself about amateur American comet watchers over the last decade and their 33 comet discoveries.



SPACE PROGRAM UPDATE
BY: BOB FINGERHUT

DISCOVERY MOVED TO
LAUNCH PAD FOR 51-G
LAUNCH



The launch, scheduled for 17 June, will carry the Mexican Morelos-A communication satellite, the Saudi Arabian Arabsat-D, and the AT&T Telstar-3D. It will also carry the Spartan 1 high energy astrophysics experiment that will be released and later retrieved, a retroreflector that will be used in a precision laser tracking experiment, an automated directional solidification furnace, French echocardiograph, equilibrium and vertigo experiments, a phase partitioning experiment, and six Getaway Special experiments. Among the Payload Specialists will be Frenchman Patrick Baudry and Saudi Arabian Prince Sultan Salman Abdel Aziz Al-Saud.

SPACELAB 2 SCHEDULED FOR JULY LAUNCH

The Spacelab 2 mission 51-F, is scheduled for launch 15 July on the orbiter Challenger. It will include the Spacelab Igloo and three pallets. Spacelab D-1, mission 51-A is scheduled for launch 16 Oct. in the orbiter Columbia.

ATLANTIS TO GO TO THE PAD FOR FIRST TIME

After the launch of Mission 51-F in July the shuttle orbiter Atlantis will go to the pad. The engines will be tested in a 20 second firing about 31 July. It will then be removed from the pad so that the Leasat rescue mission can be performed in late August. Atlantis will then be returned for its first mission in mid-September.

SOVIETS LAUNCH SOYUZ T-13 TO SALYUT-7

The launch of two cosmonauts to what was thought to be an abandoned Salyut-7 appears to be a long duration repair mission.

ARIANE LAUNCHES 2 SATELLITES

On 7 May an Ariane 3 launcher orbited two communication satellites from Kourou, French Guiana. On 2 July an Ariane 1 is scheduled to launch the ESA Giotto Halley's Comet flyby spacecraft. There is an Ariane 3 mission scheduled for Sept. with 2 communication satellites. In November that last Ariane 1 will orbit 2 scientific satellites. The final flight scheduled for Dec. 1985 is an Ariane 3 with 2 communication satellites.

ARIANE 4 ENGINE TESTS CONDUCTED

Hot firing tests of the large liquid boosters for the Ariane 4 were conducted 24 Apr. and 9 May. Either 2 or 4 of the UDMH, N2O4 fuel boosters will be strapped on to the core vehicle depending on the payload lift capacity required.

CONTROL OF NOAA-8 REGAINED

NOAA regained control of the weather satellite after its erratic master clock crystal oscillator stopped 20 Apr. Once the unit failed completely, controllers were able to reprogram the satellite's computer, with a back-up oscillator, and reorient the satellite.

NASA RECONFIGURES VOYAGER 2 AND GROUND STATIONS FOR URANUS FLYBY

The flyby of Uranus is scheduled for 22 January 1986 at an Earth to Uranus distance of 1.8 billion miles. The great distance and resulting weak signal strength will require the spacecraft to transmit at a slower data rate than during the Saturn flyby. Changes are also being made to the deep-space network in California, Spain, and Australia. Voyager 2 will continue on to a flyby of Neptune on 24 August 1989.

SPACE STATION PACTS SIGNED WITH JAPAN, CANADA, AND EUROPE

Agreements to conduct Phase B space station studies have been signed. The Japanese are planning to contribute a pressurized technology research laboratory module. The Canadians will study versions of the manipulator arm used on the space shuttle. The Europeans are interested in supplying a fly-along module called Columbus. They would like to gain experience which could lead to an all European space station.

SOVIET BOOSTER DEVELOPMENT PROBLEMS

The USSR is having problems with the development of the liquid fuel engines for the SL-X-16 booster. This is a 200 ft tall booster capable of placing 33,000 lb into orbit. The vehicle has been alternately erected and removed from the pad several times over the last year. The SL-X-16 is also important to the Soviet Shuttle and heavy lift booster programs. It is planned to use 4 of them as strap-ons when launching up to 330,000 lb payloads on the Soviet Shuttle on the Russian Saturn-5-class launcher. The Soviet shuttle program is progressing. A second large shuttle orbiter vehicle has been observed sitting partially in a hangar at the Ramenskoye Flight Test Center near Moscow. The other orbiter was setting outside the hangar.

PLANETARY NEBULAE IN HERCULES AND LYRA BY: JACK MARLING

When you mention the Constellation Hercules, most deep-sky observers think of a sparse region with only two objects - Globular Clusters M-13 and M-92.

Similarly people think of Lyra only in terms of the famous Ring Nebula, and possibly M-68. Nevertheless, these two constellations contain 15 planetary nebulae, if you know where to look. In addition to the famous Ring Nebula, there are four other large planetaries, Abell 39, Abell 46, Kohoutek 10-14 and I-15. Admittedly these obscure planetaries are not every day words among deep-sky observers, but they are indeed interesting to observe for two reasons. First, they are not very bright, ranging from 13-16th magnitude, which adds a challenge to your observing skills. Second, they have not been observed before 1985, so you will be among the first to observe them.



All 15 planetaries are listed in the table below.

Name	2000.0 Coordinates	Size	Magnitude	Brightness
NGC 6058	16h 04.4, +40°41	24"	12.9	10.8
IC 4593	16h 12.2, +12°04	13"	10.7	7.1
A 39	16h 27.5, +27°54	170"	13.0	15.0
NGC 6210	16h 44.5, +23°49	20x13"	8.8	5.9
K 1-14	17h 42.5, +21°27	47"	15.2±.6	14.7
K 1-15	17h 45.0, +27°19	43"	16-17	~16
Vy 1-2	17h 54.4, +28°00	5"	12.1	6.6
M 3-27	18h 27.8, +14°29	≤5"	13.9	7-8
A 46	18h 31.3, +26°56	63"	14.3±.5	14.4
K 2-6	18h 41.1, +26°55	30"	16.8p	15.0p
Hu 2-1	18h 49.8, +20°51	2"	11.4	5
M 1-64	18h 50.0, +35°15	18"	13.3±.5	11.2
NGC 6720	18h 53.6, +33°02	86"	8.7	9.1
NGC 6765	19h 11.1, +30°33	38"	12.9	11.9
K 3-27	19h 14.5, +28°41	16"	14.3	11.4

Information about these obscure planetaries comes from the professional literature, and from the Catalogue of Galactic Planetary Nebulae. I've taken photometric flux measurements and calculated the TRUE VISUAL MAGNITUDE, which is accurate to 0.2 magnitude, except where larger uncertainties are indicated. These planetaries are from a book on about 500 planetaries I have in preparation. The surface brightness refers to how bright the planetary nebula would be if the magnitude were spread over a circle 60 arc seconds in diameter.

DESCRIPTION OF INDIVIDUAL OBJECTS

NGC 6058 - Discovered by Curtis in 1918, this planetary is not very bright at 13th magnitude, and benefits greatly from use of a LUMICON UHC filter. The 10th mag. surface brightness makes it easy to find. The 13.8 mag. central star is pretty easy at high power.

IC 4593 - Discovered by Fleming in 1907, IC 4593 is very bright and easy to see. With a surface brightness of 7, you should see it in color.

A 39 - Discovered photographically by Abell in 1955, it is 39th on his list of new planetaries. This large planetary has an integrated magnitude of 13, so it is just as bright as NGC 6058. However, it has a 15th magnitude surface brightness. You must use filtration to see it, such as a UHC filter. I use the new LUMICON Oxygen filter, A 39 is easy to see and quite interesting. The 15.8 magnitude central star is a challenge. Perhaps only 2 people in the world have seen this visually by early 1985.

NGC 6210 - Discovered by Struve in 1827, NGC 6210 is extremely bright, and is easily seen in color.

K 1-14 - Discovered by Kohoutek in 1962, this 15th magnitude planetary is very dim. However, it is conveniently located half way between 2 stars plotted on the Tirion Atlas. It is somewhat harder to see due to a pretty bright interior star. I first observed this on May 25 of 1985, using the Oxygen filter, which passes only the Oxygen 496nm and 501nm lines.

K 1-15 - Discovered by Kohoutek in 1963, this has not yet been observed. Very dim!

Vy 1-2 - Discovered by Vyssotsky in 1942, this stellar planetary is bright and easy to see. You can find it by "blinking" it using a UHC filter, sliding the filter in and out of the space between your eye and eyepiece. I first plot these planetaries on the Tirion Sky Atlas 2000.0, then locate them by star hopping.

M 3-27 - Discovered by Minkowski in 1948, this 14th magnitude planetary was a challenge for me to find. There was no indication of size measurement in the professional literature. I plotted it on the Atlas Stellarum, and finally found it on June 11, 1985. It is stellar.

A-46 - Discovered by Abell in 1955. The planetary is pretty large at 63 arc seconds in diameter. However it was very faint, and is probably closer to magnitude 14.8, the dimmer limit to the uncertainty in its magnitude. I had to use the oxygen filter to see it with averted vision, and was probably the first person to ever see it visually (on June 8, 1985). A 46 is round, and slightly brighter in the middle.

K 2-6 - At 16.8 photographic magnitude, this has not yet been seen visually. I did not succeed in seeing it from Digger Pines with an 18" telescope.

Hu 2-1. Discovered by Humason in 1922, this bright stellar planetary is just 15' south of a star plotted on the Tirion Atlas.

M 1-64 - Discovered by Minkowski in 1946, M 1-64 is pretty easy to see, even without a filter. The round 18" diameter disc was uniform with 11th magnitude surface brightness.

NGC 6720 - The famous Ring Nebula M-27 discovered by Messier in 1779.

NGC 6765 - "Discovered" as a planetary by Minkowski in 1946, this 13th magnitude object already had an assigned NGC No. I was surprised it was not plotted on the Tirion Atlas as it was easy to see. it was quite elongated.

K 3-27 - Discovered by Kohoutek in 1964, 14th magnitude planetary should be easy to see with 11th magnitude surface brightness. I did not succeed in finding it.

Editor note: A new Oxygen-III filter (12nm bandpass) for observing these faint planetary nebulae is available from Lumicon in 1 1/4" and 48mm sizes.

LETTER TO THE EDITOR

Dear Editor:

In order to construct a low-power wide-angle RFT for viewing Halley's comet next year from New Zealand, I purchased a huge army surplus 6-element 38-mm Erfle eyepiece (used in tank periscopes and telescopes in the 40s and 50s) at the swap meet during this year's Riverside Telescope Makers Conference.

Over the years these (and the similar 32-mm) eyepieces have appeared in many magazine ads and surplus catalogues at prices ranging from \$12 to \$120. I was told the glass was a rare-earth high-refractive-index type, which accounted for its yellowish color. After returning home with the lens, I checked further with a knowledgeable optician. He said the yellow glass in this design serves only as a filter to remove blue light to give better visual image. He also noted that older glasses were often colored yellow with Uranium compounds. I therefore checked the lens with a radiation survey meter.

The result: a total alpha, beta, and gamma radiation emission level of almost two milliroentgens* per hour (0.002 R/h). Although this is a small number, if I were to use my lens for 5 hr/night 10 nights/month for a year, I would receive roughly 1200 mR, which is about 24% of the Nuclear Regulatory Commission's (NRC's) recommended yearly whole-body dose (5 REM*). Still a small number; but no longer biologically insignificant! Instead of being spread over a couple of square meters of my skin, the dosage would be concentrated in a square inch of my eye, a radiation sensitive (in more ways than one) organ.

This level of radiation intensity, especially from the highly ionizing alpha particles (absorbed mainly by the cornea), and from the more penetrating beta particles (absorbed by the lens and other internal structures) could have serious consequences over the years. The probability of my developing external or internal cataracts, or of sustaining other eye damage, could well be increased. Since my unimpaired vision is a precious asset, particularly for continuing the pursuit of observational astronomy, I have decided to permanently shelve this lens after labeling it with a radiation warning. I also strongly recommend that all amateurs check their old government surplus optics for conformity to the NRC's most recently issued permissible radiation levels for eyepiece lens surfaces.

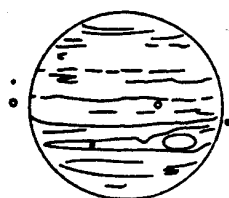
Stephen D. Greenberg
Moonshadow Expeditions

* For energetic beta particles and gamma radiation, there is a nearly one-to-one correspondence between the Roentgen and the Roentgen Equivalent in Man (REM). However, a roentgen of the highly ionizing alpha particles can equal much more than one REM.

CALICO OBSERVATORY
BY: JIM VAN NULAND

GREAT RED SPOT

A report from Gerry Rattley in Arizona indicates that the Spot remains faint, but the notch in the southern edge of the South Equatorial Belt is very easy to see at 140x using his 10-inch Newtonian.



The Spot's longitude is now decreasing rather faster than it did last year. So with Gerry's timing confirming my own, I've removed 1984 data from prediction program. The predictions are now based on 1985 times only. You will see that these times are a littler earlier than last month.

Jupiter reaches opposition on Aug 4th, and becomes an evening object. This list of predictions is as long as it will get this year. In August, planet-set will cut into the action much faster than the earlier sunset helps.

There are several pairs of transits separated by only 20 hours (two revolutions), either successive dates, or a.m. and p.m. on the same date. Test your observing skill by timing a pair -- resulting longitudes should agree within a degree or two. Let me know of your results, particularly with smaller instruments. Indicate the aperture and magnification used, and what conditions were.

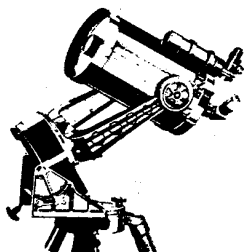
Great Red Spot				M			
on Meridian PDT				W			
da	mo	d	h m	W			
Tu	7	2	5 4 am	Sa	7 27	0 34 am	
W	7	3	0 52 am	M	7 29	2 10 am	
F	7	5	2 31 am	M	7 29	9 57 pm	
Su	7	7	4 5 am	W	7 31	3 52 am	
Su	7	7	11 56 pm	W	7 31	11 38 pm	
W	7	10	1 35 am	Sa	8 3	1 19 am	
F	7	12	3 11 am	M	8 5	2 54 am	
Su	7	14	4 49 am	M	8 5	10 46 pm	
M	7	15	0 37 am	Th	8 8	0 20 am	
W	7	17	2 20 am	Sa	8 10	2 6 am	
F	7	19	3 53 am	Sa	8 10	9 55 pm	
F	7	19	11 50 pm				

As before, good seeing is the key to ready observations. If things are not so good, find the above-mentioned dent in the belt, then watch steadily. You will quickly catch the Spot as seeing varies. And a further key is -- Experience! I see the Spot easily at SJAA star parties when others could not find it. Since I have no magic eyeballs, the reason must be due to the hours at the eyepiece. So if you don't see much, keep working at it. With each session, you will find that you see the Spot more readily, and a greater part of the time.

Clear Skies, Jim Van Nuland, 3509 Calico Avenue, San Jose, CA. 95124

BIG BEAR CONFERENCE
BY: JOHN GLEASON

Welcome to the Seventeenth Annual Riverside Telescope Makers Conference, was the sign that greeted us at the end of the dusty road and an 8 hour (record time) drive. Each year, hundreds of Astronomy enthusiasts gather at Camp Oaks near Big Bear Lake in anticipation of new optical and mechanical designs as well as enjoying each others company, our love of telescopes and the sky above. This year was to be no exception.



Several hundred telescopes of various types were on display for the 1000 attendants who came to Big Bear. Fewer telescopes were entered for the Merit Awards this year than in past. Also, there did not seem to be much improvement in the overall quality of equipment this year. Nearly all of the telescopes suffered from the "Jiggles" at the slightest touch. Some of these were beautifully handcrafted instruments that were a sight to behold. Unfortunately these telescopes suffered from mechanical instability, flexure, and drive backlash.

Atmospheric seeing this year seemed worse than in the past. This made it impossible to judge optical quality. Infact, the seeing was so bad at times, the rings of Saturn were indistinguishable from the ball of the planet. Nevertheless there were long lines behind telescopes to view the skies overhead. And what was the most popular deep sky object? You guessed it, M13! Every telescope I walked up to was pointed at the great globular cluster. Ho Hum!

New at the conference this year was a lovey two domed observatory building that was the result of 2 years work and donations from Southern California amateur's and telescope manufactures. The observatory is nearly 90% complete and houses a C14 and a Meade 10" f/6 newtonion. This was a rather popular gathering spot for conference attendees who wanted to get out of the cold and wind. Getting up into the domes was a problem however. The best description is that it was like climbing into and out of a B-17 airplane.

Your editor fell in love with a particular nice 12" f/5 newtonion on a Byers 812 mounting. This was no ordinary 812 mount. The owner, Bob Klein from Orange county, had completely re-machined all of the mountings aluminum surfaces. He then added a number of fine finishing touches like DIN connectors for the electronics, setting circle LED's, and machined aluminum handles. But to top the entire mount off, he had painted it with a high gloss resin/catalyst paint. This is a paint that is used on airplanes and boats. Bob later told me that his profession was painting boat hulls. This accounted for the professional finish. In fact, the telescope tube had been slowly turned on a lathe as it was painted. Mechanically the telescope worked well. Bob had done an excellent job balancing the mount to the telescope. The telescope seemed like it was floating on oil when it was moved. I did not find any other telescope like this at the conference. The bright yellow mounting and the burnt orange tube made it one of the most attractive telescopes on display.



Ed Byers proudly displayed his new model 58 german equatorial mounting. This mount featured huge 3-inch-diameter ball bearings on both axes, slow-motion R.A. and Declination controls, and micrometer altitude and azimuth adjustments with quick polar alignment features for astrophotography. But what about stability? It was impossible to tell since the mount was carrying an 8-inch Schmidt camera. The worm and wheel also suffered from visible backlash, much to the dismay of Mr. Byers himself, who claimed that this would not affect your astrophotography. My argument was, that if your telescope was well balanced, the telescope would tend to float through an amount equal to the error of the backlash. I have had this happen to me many times when there was even the slightest backlash in the drive gear and the telescope was well balanced. Now Mr. Byers makes some of the finest mountings that I have seen. And it has been generally accepted by amateurs that his drives surpass the tracking accuracy of all other driving systems offered by manufactures of popular telescopes. But I have yet to see photographic proof of this. This can be easily done by off-setting the mounting from the pole, and doing an unguided exposure of 30 min. or more on a 5th or 6th magnitude star. The resulting astrophoto will show stars drifted in declination along with the amount of periodic error in R.A.. The amount of error can then be easily measured from the resulting photo. I tried this with the Celestron/Byers drive and came up with a 20 arc second peak to peak error in the drive. Hardly what I would call unparalleled tracking accuracy. I would like to here from anyone who ends up owning one of the Byers 58 mountings. In fact, I may even ask Ed Byers to send one up to me for this kind of evaluation.



This years conference featured a number of speakers. John Briggs talked about neglected telescopes and their discovery. Mark Coco and Steve Edberg both gave talks on image intensifiers, color films, and Comet Halley. George Ellis (Texas Star Party) told us about the Astronomical League's upcoming trip to Peru to view Halley's. The SJAA's own Don Machholz presented "Telescopes and recent Comet Discoveries". On Saturday evening conference attendants were treated to additional entertainment courtesy of the United States Air Force. No it wasn't the Thunderbirds, but it was a duel rocket launching that brought back memories of a recent TV movie called; The Day After. Both rockets headed towards the west. I think we would have felt a little more serious about the situation if the rockets had gone north! And had been followed by additional launches.

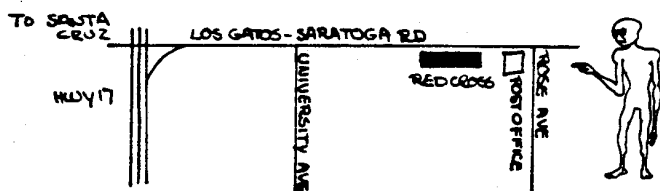
Despite the poor seeing, the conference was still a huge success and it ended all too soon. By Sunday afternoon, many people were already leaving for the long drive home. This was the first time that I had spent more than 1 day at the conference. In the past I had flown in on Saturday afternoon with Norm Neinchel and had left early on Sunday morning. The two and one half days your editor spent at Big Bear this year were most enjoyable. I am already looking forward to next year. But wait, what's this I here about a full moon on Memorial day?

Another new mounting appeared from Tom Mathis of Hayward. Remember the C8 fork problems I mentioned in last months equipment section? Well it was as if Tom had taken my advice and produced a smaller version of his observatory fork mounting and drive specifically designed for an 8-inch Schmidt-cass. It sure looked sturdy enough, but one sharp rap on the tube proved me wrong again. The C8 vibrated badly. Most of the instability seemed to come from the fact that the pedestal was hollow aluminum tubing. The next day, this pedestal was filled with bags of sand. The telescope and mounting was then able to dampen out quickly. I suspect that a lot of good mountings are wasted due to a poor design in tripods and/or pedestals. I am still reminded of Kevin Medlock's 4" refractor mounted to a rather small german equatorial, and then rigidly attached to a large hardwood tripod. This arrangement damped out in less than a second. A similar telescope mounted to its standard tripod took about 5 seconds for vibrations to die out. There was only one other thing wrong with the Mathis mount. That was the price, \$1600. But I have to admit that it was price competitive with just about everything else we saw at the conference. This price included, fork mount and drive. Declination slow motion and setting circles, aluminum pedestal and legs. You might be better off with the Byers mount and drive as far as portability is concerned.



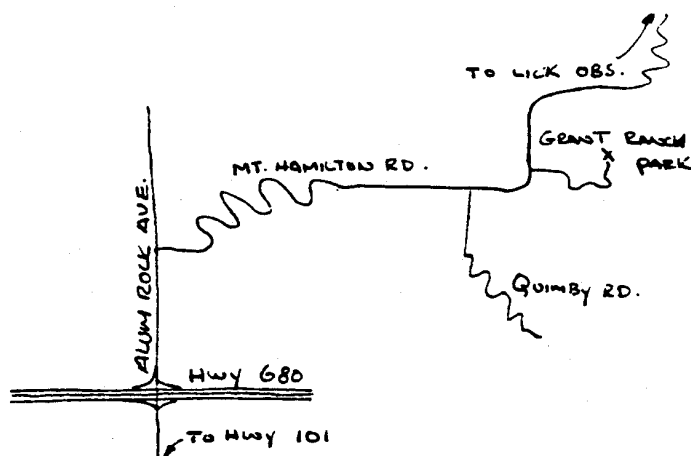
GENERAL MEETINGS:

General Meetings are held once a month at the Los Gatos Red Cross building, Los Gatos California. This is also the location for the SJAA's "Indoor Star Parties". The building is located at 18011 Los Gatos-Saratoga Rd. From Hwy. 17 south, take the Hwy 9 (Saratoga) exit and continue up Los Gatos-Saratoga road for about 1.5 miles. Turn right at Rose Ave. Then turn right immediately into the parking lot of the Red Cross building. MEETINGS BEGIN AT 8 PM.



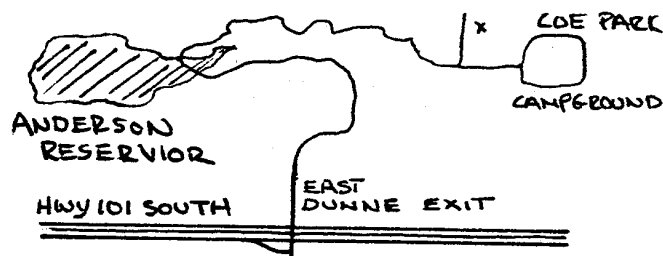
GRANT RANCH COUNTY PARK:

This site is becoming a popular one for the SJAA so come and try it out. Located on Mt. Hamilton Road, take Hwy 101 (either direction) to Alum Rock Rd. Go east up Alum Rock Rd. and turn right onto Mt. Hamilton road and follow it. Grant Ranch is just past the Quimby road intersection. After sunset the parks front gate will be locked with the SJAA's combination lock. Use the sequence 4565 to open, but be sure to lock the gate behind you, coming or going. There are two gates, the lock may be on the exit gate, if so, enter the park from this gate. There is also an observing area further up the Mt. Hamilton road that is also part of the county park. Contact the SJAA for directions.



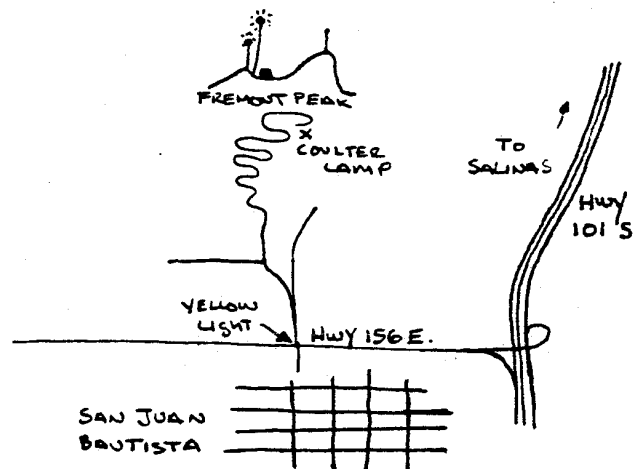
HENRY COE STATE PARK:

Take Hwy 101 south towards Gilroy and take the East Dunne exit. continue east towards the hills (past Anderson Reservoir) for about 12 miles to the park. Past the park entrance you will see old ranch type buildings on the right and a horse trough. The gate (on the left) is locked but the club combination is 4565. Always lock the gate after yourself. If arriving after dark, please park outside the gate and hike in first to find an observing site before driving in. Parking lights only after dark, please.



FREMONT PEAK STATE PARK:

Take Hwy 101 south towards Salinas. Then take Hwy 156 east (San Juan Bautista exit) for two miles to a yellow flashing light. Turn right and go about 1/4 mile to where the road curves slightly to the left and splits. Stay left for about 25 yards and then bear right. (watch for the Fremont Peak sign). Follow the road for about 11 miles up into the park. SJAA sets up at Coulter Camp. It's visible on your right as you drive up into the main area of the park. Parking lights only after dark, PLEASE!



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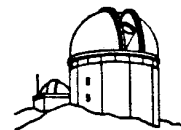
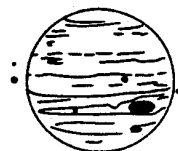
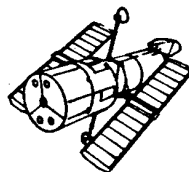
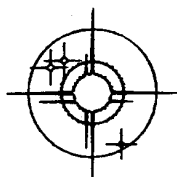
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