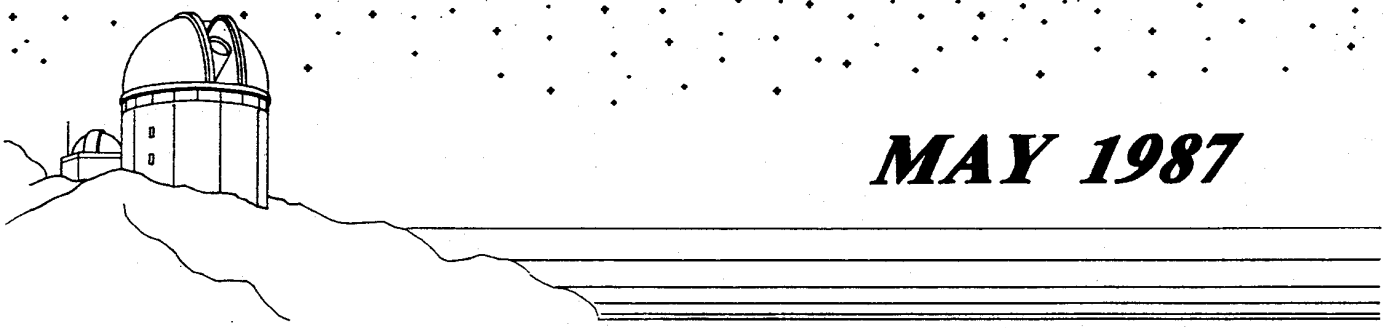
EPHEMERIS

OF THE SAN JOSE ASTRONOMICAL ASSOCIATION

MAY 1987



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* MAY 2ND 6 PM *
* SEVENTH ANNUAL ASTRONOMICAL AUCTION *
* DOORS OPEN AT 1 PM *
* *
* MAY 30TH *
* FREMONT PEAK OBSERVATORY ASSOCIATION *
* GRAND OPENING NIGHT *
****

MAY	2	SEVENTH ANNUAL ASTRONOMICAL AUCTION TO BE HELD AT THE LOS GATOS RED CROSS BUILDING. DOORS OPEN AT 1 PM FOR EQUIPMENT PRE-REGISTRATION AND ITEM VIEWING. AUCTION WILL BEGIN AROUND 6 PM. GET THERE EARLY!
MAY	9	SJAA BOARD MEETING AT 7 PM, FOLLOWED BY THE INDOOR ASTRONOMY CLASS AT 8 PM. LOS GATOS RED CROSS BUILDING.
MAY	16	INDOOR STAR PARTY AT THE LOS GATOS RED CROSS. 8 PM
MAY	23	FIELD EXPEDITION FOR ASTRONOMICAL OBSERVATION TO FREMONT PEAK. RIVERSIDE TELESCOPE MAKERS CONFERENCE AT BIG BEAR LAKE CALIFORNIA. MAY 23 THROUGH THE 25TH.
MAY	30	FIELD EXPEDITION FOR ASTRONOMICAL OBSERVATION TO FREMONT PEAK. ALSO, FPOA GRAND OPENING NIGHT.
JUNE	6	UFO'S - THE OTHER SIDE WILL BE THE TOPIC OF THIS EVENINGS GENERAL MEETING FETURING TOM GATES. 8 PM, LOS GATOS RED CROSS BUILDING.
JUNE	13	SJAA BOARD MEETING AT 7 PM, FOLLOWED BY THE INDOOR ASTRONOMY CLASS AT 8 PM. LOS GATOS RED CROSS BUILDING.
JUNE	20	FIELD EXPEDITION FOR ASTRONOMICAL OBSERVATION TO FREMONT PEAK. DUSK TILL DAWN
JUNE	27	ANNUAL SJAA PICNIC. GRANT RANCH COUNTY PARK. NOON TILL ?

FIELD OF VIEW
BY: JOHN GLEASON

SEVENTH ANNUAL ASTRONOMICAL AUCTION

Hopefully you would have received your Ephemeris in time to remember that the Astronomical Auction is now upon us, May 2nd. Looking forward to seeing you all there. The Auction takes the place of our General Meeting this month only.

FPOA GRAND OPENING MAY 30TH

May 30th marks the first formal public program to be held at the recently completed 30-inch observatory. Guest speakers, slide shows, and an evenings observing are all planned. Everyone is invited to attend, so come on down and join in the fun.

JUNE 27TH DATE SET FOR ANNUAL SJAA PICNIC

Be sure to mark your calendars for this years nicpic to be held at Grant Ranch County park. Starting at around noon, the SJAA will use the picnic and Bar-B-Q facilities that are directly to the north of the parking lot that we used to have our star parties in. More information and directions next month.

DR. CLYDE TOMBAUGH TO SPEAK AT 1987 RTMC

Plan now to attend the 19th Annual Riverside Telescope Makers Conference on May 22, 23, 24, and 25, Friday afternoon through Monday morning. It will be held at Camp Oaks, which is located 5 miles east of Big Bear City on Highway 38 at Lake Williams Road. This location is 50 miles northeast of Riverside, high in the San Bernardino mountains. It is a clean mountain YMCA Camp which is located at an elevation of 7300 feet.

The conference grounds will open at 1:00 pm on Friday. Please do not arrive before that time as you will not be permitted on the grounds. No camping will be allowed prior to the event: other YMCA camp activities will be in progress.

This year as in the past, merit award certificates and engraved plaques will be awarded for displays and telescopes with novel design, exceptional craftmanship, and use of related equipment or accessories. The Warren Estes Memorial Award will again be awarded for the best telescope made from simple materials.

This year again we will again be awarding the Clifford Holmes Award to the amateur astronomer who contributed most to amateur telescope making. The Merit Awards will be presented Sunday evening.

SPECIAL EVENT: Dr. Clyde Tombaugh will be speaking Sunday morning 9:00 am, A charge of $5.00 per person will be made to attend this single presentation. All proceeds will go to the Clyde Tombaugh Scholars Endownment Fund being instituted at the New Mexico State University, Las Cruces, New Mexico.

20MM NAGLER EVALUATED

During March Star Party at Fremont Peak, I had an opportunity to use the new 20mm Nagler, Type-2 eyepiece. The development of the eyepiece adds a much needed longer focal length to the current series of Nagler eyepieces. Al Nagler's 13mm eyepiece was a bit short in EFL for a lot of long focus telescopes, especially the popular f/10 Schmidt Cassegranians. The 13mm also sufferes from an unusual "kidney" shaped exit pupil distortion that is a little annoying if you do not get your eye at the exact focus point of the field lens. The Type-2 series of eyepieces (a 16mm and 12mm are soon to follow), are designed to eliminate all exit pupil distortions, so needless to say a number of amateur astronomers have been anxiously awaiting the arrival of these new eyepieces.

The 20mm is not a whole lot larger than the 13mm Nagler, weighing in at about 2 lbs. Certainly not an eyepiece for a lightweight, shaky mounting, the 20mm is designed to fit only 2-inch focusing tubes and adapters. The exterior machine work is the same excellent finish that has become the standard of all Nagler and Tele Vue eyepieces. The 20mm eyepiece is also fitted with a built-in rubber eyecup.

The 20mm was put through an entire evenings observation on the FPOA 30" f/4.8 telescope. On the thirty it yielded a magnification of 183X, hardly a low power for wide field work, but nevertheless it provided a useful magnification for galaxy and globular cluster observation.

Upon initial use, you are first struck by the fact that you have to get your Mark I eyeball directly inside the rubber eyecup to see around the entire 82° apparent eyepiece field of view. So close does your eye get to the field lens, you would sware that if you moved a fraction of a millimeter closer, you would come into contact with the field lens itself. This is the first time that I really had to "look around" the inside of an eyepiece to take in the entire field.

In this particular instance we were looking at 14th magnitude Halley's Comet. The eyepiece rendered the comet as a small, faint, egg-shaped cotton ball, floating among a wonderful starfield. I was amazed at how well the eyepiece corrected the telescope's optical coma. The coma has been readily apparent in other eyepiece types. In addition the 20MM seemed to push the telescope away from the observer. Here was a real "window" to the universe.

Later, I had a chance to test the eyepiece on a 14" f/11 Celestron. Once again the window effect pushed away the telescope to reveal an extremely high contrast image of the Ring Nebula. The combination of this eyepiece and f/11

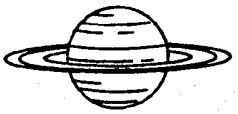
yielded a jet black sky background through the C14 at 195X. Star images were razor sharp to the extreme edges and appeared to be relatively ghost free considering the multitude of optical surfaces that the starlight was passing through.

Gone were the exit pupil distortions that have become common artifacts in the 13mm Naglers. The 20mm presented to me what was probably the clearest, sharpest view that I have seen through a telescope in a long time.

I only have a few minor complaints about this eyepiece. First, the rubber eyecup seems that it could have been constructed with a little more durability. It will be the first thing to go after continuous use. Users were constantly folding it forward and back to accommodate the extremely short exit pupil distance. It might be best to eliminate it altogether, or at least keep it folded forward when in use. Secondly, the extremely short exit pupil distance will present a problem for those observers who like to ware their glasses when looking through the eyepiece. Using this eyepiece means having to run your eyeball right up to the field lens to take full advantage of the entire field of view. This could present problems for first time observers who often have problems looking through eyepieces as beginners. Stick to your wide-field Erfles for these applications.

The 20mm is certainly targeted for the serious deep sky observer. Its $300 to $400 price tag is not for the light of bank account. Those who can afford to pay the price will certainly get a high quality product. The 20mm will be a welcomed addition to the "Superior" C14 when looking for those illusive surface details on Jupiter's moons!

THE CELESTIAL TOURIST SPEAKS
BY: JAY REYNOLDS FREEMAN



In recent months I have found a relatively new, small star atlas increasingly useful. The work is a "Collins Gem Guide", apparently one of a series. This particular "Gem Guide" is The Night Sky, featuring the well-known and excellent celestial cartography of Wil Tirion, with text by Ian Ridpath. Collins is a British Publisher (London and Glasgow), though my copy has a sticker on the back cover that reads "Simon and Schuster". The book was published in 1985.

The work is most immediately remarkable for its tiny physical size: this 240-page soft-cover book is only 8 by 12 cm, and little more than 1 cm thick -- not much larger than a deck of playing cards. This handy volume fits easily into a shirt pocket, and eyepiece case, or a glove compartment.

The first twenty-odd pages provide some elementary details about the various kinds of objects charted, describe celestial coordinates and the magnitude system, and introduce a few other astronomical topics. The next ten pages present charts of the entire sky at a scale of one degree per milimeter, with sufficient stars shown to delineate all the constellations; that is, with most stars to fourth magnitude and a few at fifth magnitude where necessary to show constellation shape.

Then comes the bulk and heart of the book, 198 pages of charts and descriptions of each constellation, all in alphabetical order. The format is uniform: The entry for a constellation starts out with a double-page spread, with text on the left-hand page and a chart on the right-hand page. In most cases, that's all but in constellations with a large number of interesting objects there is more text, additional maps at larger scale, and an occasional photograph or other figure.

The charts are nice. The background is medium blue, with paler blue for the Milky Way, the Clouds of Magellan and large nebulae. The borders of the selected constellation and its conventional stick-figure representation are in white for emphasis, while the coordinate grid and other constellation boundaries are in black. Stars are shown in white to a uniform fifth magnitude. Within the selected constellation, there are many star identifications and deep-sky objects; there is much less such detail outside its borders. The epoch is 2000 throughout. Scales vary, but no chart appears either cluttered or sparsely filled.

Tirion has made good choices in selecting chart scales. Large and easily located constellations are drawn so as to fill most the available space, but smaller or less obvious ones are presented with a great deal of sky around them, enough to relate their positions to more readily recognized skymarks. There is none of the loss of orientation that sometimes comes with viewing a chart closely cropped to constellation boundaries.

The charts show moderate numbers of variable stars and doubles. The deep-sky

objects include essentially all the Messier objects (M40 is neither charted nor mentioned; M110 is listed only as NGC 205 -- but not everyone includes it in Messier's catalog), as well as other objects of similar brightness or notoriety. There is much more detail in selected special regions: the chart of the Virgo galaxy cluster shows 50 or 60 galaxies, and the one of central Orion goes to stellar magnitude eight and shows the Horsehead Nebula, NGC 2024 and the like. All kinds of objects are depicted with their familiar symbols.

The accompanying text describes a selection of the brighter and more interesting objects in the constellation. The details given emphasize appearance and detectability in small telescopes.

Finally, there is a pretty good index. It could be improved by listing the pages on which named and numbered objects are charted -- the present index only includes things mentioned in the text portions of the book. On the other hand, the index-makers did include the numerical identifications of objects mentioned; there is a long column of Messier objects under "M" and two or three columns that begin "NGC".

The book is sturdily constructed. After a year or two of moderate use, none of the page sin my copy show any sign of falling out, and the heavy soft cover is only beginning to look dog-eared. The volume won't lie open, but it is small enough to hold open in one hand with ease.

Best of all is the price, which was only $4.95. At that rate I have gotten several copies to inflict on my friends, and I leave one in the glove compartment of my car.

I usually have a copy of The Night Sky in my pocket at star parties. Most of the deep-sky objects it depicts are bright enough to show in finders, and a chart with a limiting magnitude of five has enough stars so that in most part of the sky I can get the finder to the right field almost instantly. (There would not be enough stars to set finder cross-hairs at the location of an object which was too faint to see through the finder -- for that task a chart limit of magnitude nine is more like it -- but or objects that are easily detected in the finder itself, magnitude five is fine.) The atlas is also an excellent adjunct for binoculars, and will easily fit in a binocular case, so as not to be left at home.

SCIENTISTS IDENTIFY STAR THAT BECAME SUPERNOVA
BY: DAVID L. CHANDLER

Backpedaling from earlier statements, astronomers are saying that the star that blew up 10 weeks ago in Southern Hemisphere skies to become supernova 1987A had been identified in earlier photographs. It marks the first time scientists have a visual record of a star that would later explode, providing a real bonanza for astronomy.

The exploding star in the Large Magellanic Cloud, nearly a million trillion miles away, was Sanduleak-62 202, a blue supergiant star that some astronomers said was involved soon after the blast was seen Feb. 23. The star was then ruled out, but now, with some embarrassment, the scientists who earlier dismissed it have confirmed it is the "progenitor" of the supernova after all.

But the type of star the astronomers found and its strange recent behavior still bewilders theoreticians.

Astronomers are delighted to have an identification of the star because careful analysis of photographs taken before the explosion should provide a wealth of information on how and why such explosions occur -- until now, a matter of pure theory. But scientists are perplexed because the star is the "wrong" type, according to present theories.

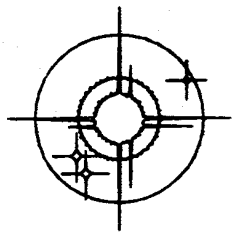
Meanwhile, the supernova is not behaving according to textbook expectations. Instead of fading slowly away after a sudden brightening, it has been slowly but steadily increasing in brightness since its initial outburst.

Overall, the supernova is now at least 2½ times as bright as it was 8 weeks ago -- about magnitude 3.5, as measured by the International Ultraviolet Explorer satellite. "We've been on pins and needles waiting to see how bright this thing is going to get," said astronomer George Sonneborn.

Sonneborn and Robert Kirshner of the Harvard-Smithsonian Center for Astrophysics reported in mid-March that Sanduleak-62 202, according to measurements by the IUE satellite, was still there. It thus could not have been the one that exploded.

But new, more precise measurements have shown that the light they were seeing was not from Sanduleak-62 202 but from a very close companion whose light had similar color characteristics.

COMET COMMENTS
BY: DON MACHOLZ



Comet Wilson, up from the south, enters our evening sky as the moon clears out this month. Halley's Comet continues to fade, amateurs have perhaps two more months to see it. Meanwhile, the morning sky displays two comets that should be visible in even the smallest telescopes. Finally, one returning comet has been recovered and a new faint one discovered.

Periodic comet Klemola (1987i): J. Gibson used the 1.5-m reflector at Mt. Palomar to recover this comet on Feb. 16. He confirmed the recovery with another exposure a month later. Then at magnitude 19, the comet is not expected to get much brighter. Its orbital period is 11 years and it never gets within the orbit of Mars.

Comet Torres (1987j): Carlos Torres discovered this 16-magnitude comet on plates takes from Chile on Mar. 28. It was then in the southern constellation Centaurus, and at perihelion at a distant 3.6 AU. It will be getting fainter now.

EPHEMERIDES

DATE	R.A. (1950)	DEC	ELONG	MAG.	NOTES
		Comet Sorrells (1986n)			
04-25	23h 25.1m	+11° 29'	39°	10.1	Now about two astronomical units
04-30	23h 22.4m	+11° 40'	45°	10.1	from both the earth and the sun, this
05-05	23h 19.1m	+11° 50'	50°	10.1	comet is still moving at 18 miles
05-10	23h 15.2m	+12° 00'	55°	10.1	per second. Its distance from us
05-15	23h 10.5m	+12° 08'	61°	10.1	will actually decrease between now
05-20	23h 04.8m	+12° 15'	67°	10.0	and mid-July, yielding a constant
05-25	22h 57.9m	+12° 18'	73°	10.0	brightness until then. Apparent
05-30	22h 49.8m	+12° 18'	79°	10.0	motion is a slow 0.4 degree/day
06-04	22h 40.1m	+12° 13'	86°	10.0	through Pegasus in the morning sky.
		Comet Nishikawa-Takamizawa-Tago (1987c)			
04-25	22h 28.3m	-17° 24'	62°	9.0	This comet, in a retrograde orbit, is
04-30	22h 17.0m	-20° 00'	70°	9.0	closest the earth in late May at 52
05-05	22h 01.3m	-23° 17'	79°	8.9	million miles. This accounts for its
05-10	21h 38.8m	-27° 29'	90°	8.8	rapid apparent motion. In early May
05-15	21h 04.8m	-32° 45'	104°	8.7	it rises just before dawn, by late in
05-20	20h 11.8m	-38° 42'	120°	8.6	the month it rises before midnight.
05-25	18h 53.2m	-43° 33'	138°	8.6	Comet 1987c may be brighter than the
05-30	17h 18.2m	-44° 19'	155°	8.8	estimates here. Try to get out and
06-04	15h 55.8m	-40° 40'	159°	9.2	observe this quickly-moving comet.
		Comet Wilson (1986L)			
05-10	07h 40.0m	-50° 40'	91°	4.6	Comet Wilson moves northward into our
05-15	08h 02.8m	-38° 58'	87°	5.0	southern evening sky, at perhaps
05-20	08h 16.2m	-30° 10'	82°	5.4	naked-eye brightness. The Milky Way
05-25	08h 25.4m	-23° 38'	73°	6.2	background should provide some fine
06-04	08h 38.3m	-15° 00'	69°	6.6	photos, but will lower the contrast.

DATE	R.A. (1950)	DEC	ELONG	MAG.	NOTES
		Periodic Comet Halley (1982i)			
04-25	09h 49.8m	-07° 15'	117°	13.2	The most well-known comet of all is
04-30	09h 48.2m	-06° 47'	112°	13.3	now a tiny smudge in even the largest
05-05	09h 47.0m	-06° 22'	107°	13.4	telescopes. Its motion appears to
05-10	09h 46.1m	-05° 59'	102°	13.5	cease as the comet and earth move in
05-15	09h 45.5m	-05° 39'	97°	13.5	nearly opposite directions. Halley's
05-20	09h 45.3m	-05° 20'	92°	13.6	is highest in the southern sky at
05-25	09h 45.3m	-05° 04'	88°	13.7	evening astronomical twilight. For
05-30	09h 45.6m	-04° 50'	83°	13.8	2000 coords, add 2.5 min. to RA and
06-04	09h 46.1m	-04° 37'	79°	13.8	subtract 15' from Dec.

SEEKING COMETS

Comets are designated with proper names, usually this is the name of the discoverer. This month I'll cover the normal situation, next month we'll look at the exceptions.

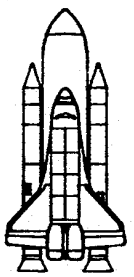
As an example, if Joe Smith visually discovers a new comet, upon confirmation it is known as Comet Smith. Smith has no say in what he wants to name it, his name has to be used. This prevents the "selling" of comet names by the discoverers. If Fred Jones also discovers and promptly reports the same comet, then it is known as Comet Smith-Jones. This is true only if Jones independently finds the comet. If Smith tells Jones where to look and Jones observers it, then this is not really a discovery. Up to three names can be on a comet, and each is separated by a hyphen (-).

How close in time must the discoveries be in order for multiple names to appear on the comet? For most comets the name is established at the time of confirmation, and for visual discoveries this is within a day of discovery. Until a few decades ago, slow communications, allowed a new comet to remain unconfirmed and "co-discoverable" for several days or even weeks.

Of the 38 comets found visually since Jan. 1975, 29 have one name attached, three have two names, and six have three names. The number of independent discoveries of each comet provides one indication of the world-wide comet hunting activity. Most of the multiple-name comets are found in the morning sky and are brighter than the average comet. Four of the six triple-name comets consist of three Japanese names.

When a comet is discovered by photographic means, the name is often that of the person who finds it on the photo. Usually, but not always, this is the person who took the photo. Sometimes both names are affixed to the comet.

When a periodic comet, whose orbit is well-known, is recovered, the recoverer's name is not attached to the comet. On the other hand, if a previously lost periodic comet is accidentally "discovered" by someone who was unaware of its existence, their name is added to that of the old name, separated by a hyphen. In 1987, for example, Fujikawa of Japan discovered a comet. It was known as Comet Fujikawa until the newly-computed orbit showed that it was Comet Denning, originally found in 1881 and lost for 11 revolutions. It is now Comet Denning-Fujikawa.



SPACE PROGRAM UPDATE
BY: BOB FINGERHUT

NASA AND THE WHITE HOUSE AGREE ON A CUT BACK SPACE STATION PROGRAM

The construction of the space station was broken into two phases with the second phase put off to some unspecified date. Construction of the first phase would be put off one year to a start in 1994. It would be permanently manned starting in 1996. The phase one station would be made up of the main truss (one horizontal beam), a U.S. laboratory, a living quarters module, an unmanned polar orbiting research platform, two laboratory modules being built by Europe and Japan and part of Canada's mobile servicing center.

Elements deferred to the second phase are the two keels, the upper and lower booms to which science experiments would be mounted for observing earth and

deep space, the satellite servicing center, half of the power system and a research laboratory that would fly alongside the station and be serviced by space-walking astronauts.

NASA SHOVED OUT OF THE LAUNCH BUSINESS

In separate actions the Secretary of Transportation has requested that the Office of Management and Budget (OMB) direct NASA to purchase commercial expendable boosters (ELV's) for all payloads not unique to the shuttle and the Commerce Department has notified NASA that they will no longer contract through NASA for ELV launches but will go directly to the private sector. The Air Force has also decided to cut NASA out of the development of the Heavy-Lift Launch Vehicle (HLLV). NASA would like to use shuttle technology for the HLLV.

SOVIET SHUTTLE PROGRAM IS MAKING BROAD PROGRESS

The Soviet Union has conducted a flight readiness firing of its Saturn-5 class heavy lift booster on the pad at Tyuratam. The booster can be used to launch the large Soviet shuttle or up to 220,000 lb into orbit in an unmanned configuration. The first unmanned flight of the HLLV is expected by mid-summer and the first flight with the manned shuttle attached could occur by late 1987 or early 1988.

The Soviet's small manned spaceplane vehicle is also expected to begin full-scale manned flight testing soon. The Soviets have made four successful orbital flights with a 1/4 scale model of the vehicle and the SL-16 booster that will launch the spaceplane has made several successful launches recently.

GENERAL MEETINGS AND INDOOR STAR PARTIES

Once a month the SJAA holds a General Meeting at the Los Gatos Red Cross building in Los Gatos California. The large meeting room has kitchen facilities and large slide projection screen. This is also the location for the SJAA's "Indoor Star Parties", informal sessions where members gather to share their astronomical interests. Whatever your interest, astrophotography, deep sky observation, telescope making, or just arm chair observing, you'll find a friendly atmosphere at all of our meetings. The Red Cross building is located at 18011 Los Gatos-Saratoga Rd. From Hwy 17 take the Hwy 9 (Saratoga) exit and continue west up the Los Gatos-Saratoga road for about 0.5 miles. Turn right at Rose Ave. Then turn right immediately into the parking lot of the Red Cross building. Doors open at 7:45 PM, with General meetings beginning at 8 PM. General Meetings are held on the 1st Saturday of each month.

Each month there are several Saturday evenings set aside for informal gatherings of amateur astronomers to share their common interest in astronomy, to "talk shop", or to simply enjoy the company of friends. Members are encouraged to bring in telescopes and accessories to share with the group. Typically there will be several telescopes operating in the parking lot or there will be a slide show of recent astrophotography and star party events in progress in the meeting hall. The SJAA also holds it board meetings during this time as well as an introductory astronomy workshop that is conducted once a month. Indoor Star Parties are held at the Los Gatos Red Cross Building.

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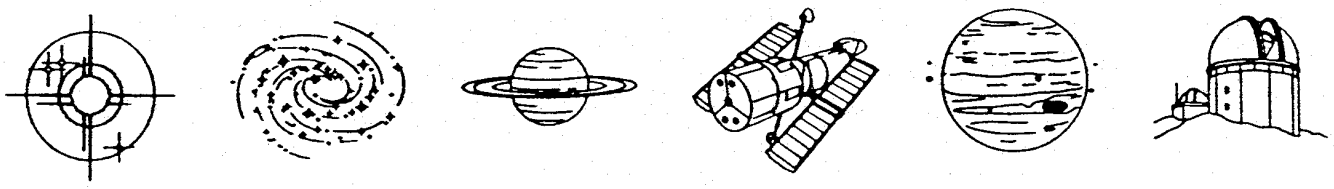

SAN JOSE ASTRONOMICAL ASSOCIATION MEMBERSHIP APPLICATION

MEMBERSHIP ONLY: $ 10 MEMBERSHIP/S&T: $ 24.00 JUNIOR (UNDER 18): $ 17.00

Name _____

Address _____

_____

Telephone (____) _____

Please bring this form to any SJAA meeting, or send to:

Jack Peterson, Treas.
San Jose Astronomical Association
1840 Yosemite Dr.
Milpitas, CA. 95035

[Phone: (408) 262-1457]

Please check type of membership and if new or renewal.

Membership Only____ Membership/S&T____

Junior (Under 18)____

New____ Renewal____

Questionnaire (optional)

What are your astronomical interests (e.g. astrophotography, deep-sky observation, telescope making, etc.)? _____

_____

_____

_____

Do you own a telescope? _____ If so, what kind?

_____

Is there any specific area of astronomy that you feel qualified to help others with? _____

_____

_____

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