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# JANUARY '77

Jack M. Zeiders  
Editor  
292-0107

## WHAT'S GOING ON IN THE CLUB:

January 7: Olinder Center, 7:30 P.M. general membership meeting

"STAR TREK GROUND SCHOOL- session I: The Demon Stars"  
This will be the first session of two devoted to the topic of Demon Stars in our galaxy. Attendance is recommended for those interested in joining the future U.S.S. Enterprise survey missions in the Milky Way.

Instructor: Allan Meyer, K.A.O., S.J.A.A.

January 14: Norm Wilde's home, 8:00 P.M. board meeting  
7757 Orange Blossom Dr.

January 15: Los Gatos Red Cross, Indoor Star Party, 7-10 P.M.

January 22: El Sereno, Field Expedition for Astronomical Observation, (star party) The term "star party" has recently brought with it the less than desirable connotation of a PARTY type activity. If you can think of a better term, please let me or another board member know.

January 29: L.G. Red Cross, Indoor Star Party, 7-10 P.M.

February 4: Olinder Center, 7:30 P.M. general membership meeting.  
The conclusion of "Demon Stars".

February 11: Allan Meyer's Apt.Rec. Room.

February 19: Henry Coe State Park, dusk - dawn, F.E.A.O.

Some of the newer Members and a few older ones have had trouble finding our observing sites. I will prepare a map for each site and publish it in the Bulletin as the various locations come into use. Each individual map will be presented only once, I urge you to save them for future reference. This month the map is for the El Sereno site, it also covers the Los Gatos Red Cross building.

## UPDATE...

prepared by Ed Schell

The location of the mars probes are:

Viking I 22.48 N \* 47.9 W

Viking II 47.97 N \* 225.7 W (Science News, Nov. 20, 76)

A cool supergiant star in the core of the Milky Way has been resolved by a spectrometer at Kitt Peak. (Astrophysical Journal Letters, Nov. 1)

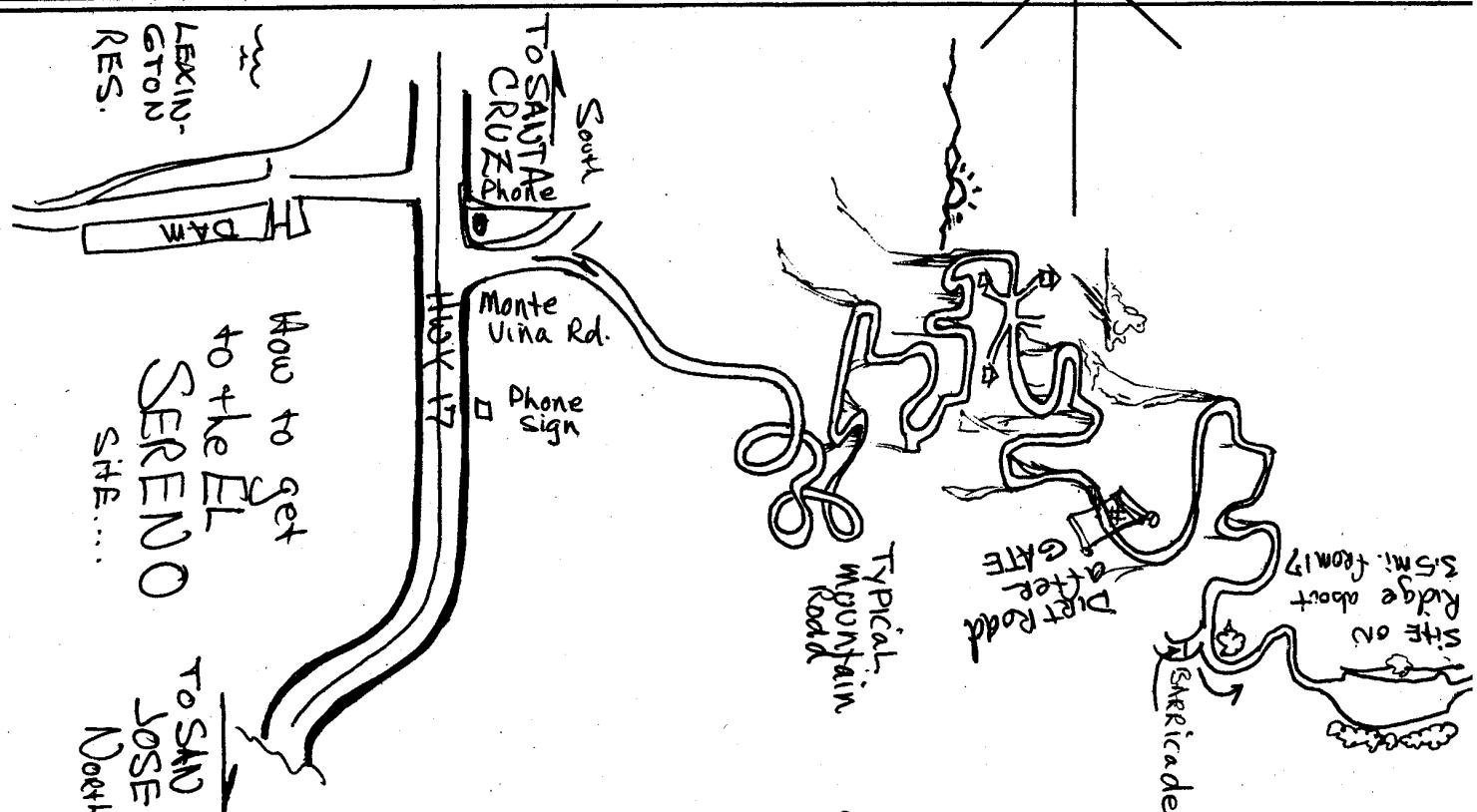
Aphoto by Hale Observatories shows that M. 87 is not just ejecting a jet, but a series of dense luminous objects. (Time, Dec. 6)

The asteroid Adonis is due to make a close approach of between 1.3 to 40 million miles in early February.

The asteroid 1976 WA passed within 15 million miles of earth. (Dr. Brian Marsden, Smithsonian Astrophysical Observatory.)

These astronomical news tidbits were compiled by Ed in the hope that you might find them of interest. If you have any comment or contribution, call ED or write him at: 356-7498 or P.O. BOX 1345 Los Gatos, Ca. 95030

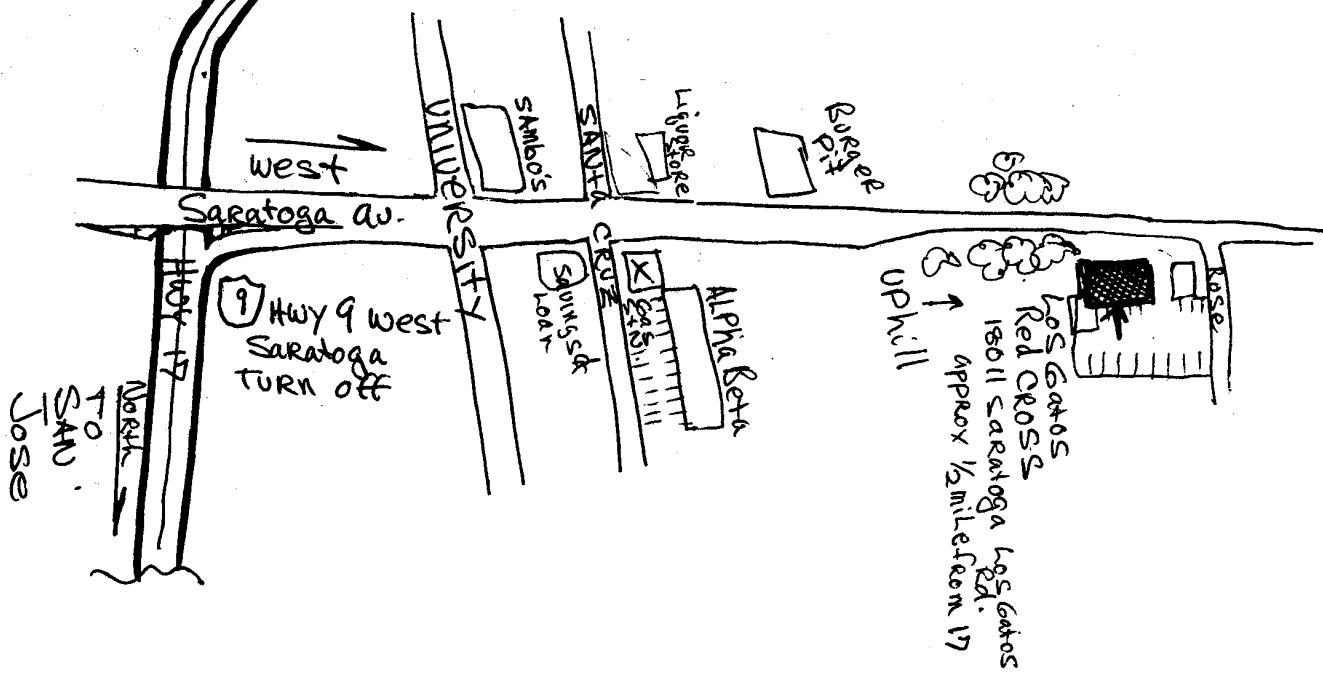
sac



Save these maps for future confusion.

guaranteed to be accurate ± 5 parsecs

### approximate directions to Los Gatos Red Cross



# OCCULTING ZONE

## LUNAR OCCULTATIONS

Jan	PST*	Mag	III	E1	CA	PA	Star,	Notes
7	7:06	R	6.1	95-	16	75S	283	M67 A.M. time
10	5:28:21R	6.3	74-	49	23N	2		A.M. time
12	5:38:52R	5.7	53-	44	90N	293	g Vir	A.M. time
22	8:03:40D	8.3	14+	11	68S	86		
24	6:30:46D	8.7	30+	48	78S	78		
	6:43:13D	8.2	30+	46	67S	89		
	8:23:18D	8.8	31+	29	73N	49		
	9:09:01D	8.5	31+	21	81S	75		
25	10:33:35D	8.6	41+	15	85N	63		
26	6:19:11D	8.0	49+	65	35S	126		Deep twilight
	8:31:25D	7.1	50+	48	44N	25		
28	0:33:17D	7.3	60+	13	70S	94		A.M. time
	5:46:34D	6.0	68+	60	57N	44		Bright twilight
	11:07:42D	6.3	69+	39	44S	123		
29	1:18:21D	6.8	70+	14	87N	75		A.M. time
	7:55:22D	6.1	77+	71	34N	25		
	9:28:17D	6.8	77+	66	58N	49		
Feb.								
1	3:09:52D	5.1	92+	21	60S	116	26 Gem	A.M. time

\* Times are PM except as noted.

My USNO predictions have arrived, and now include not only planets, but also various galactic objects, of which M67 is the first. There are number of such objects within the zodiac and so are occulted by the moon. Hopefully we'll have a chance to see some of them in the future, though no bright ones are occulted during 1977.

All of the above stars are bright -- if you've had trouble seeing last month's dimmer ones, give it another try. None are double this month.

The moon is still very bright Jan 7 when it occults M67. It is low in the west, and so M67 will probably not be visible in the glare. If anyone attempts to see this event, let me know whether or not you succeeded. The stated time is the beginning of the reappearance; duration of the emergence is 28.4 minutes.

## GREAT RED SPOT OF JUPITER

The "Red" spot continues to be yellow and slightly difficult due to the poor contrast. But when the seeing is steady, it is a splendid sight among the belts. Don't miss the chance to get a look on these evenings when Jupiter is so favorably placed high in the evening sky.

(Continued)

A SECOND EVENT...Big White Spot

The white spot discovered last Oct. 24 has gotten a bit less obvious, though still about the same size. It has speeded up as of this writing, so look for it early and time a passage, then you'll know whether the predicted times are accurate. Don't be surprised if it suddenly and silently vanishes away.

Remember that the times given are for the meridian passage; the spots are generally observable about an hour before and after.

Watch for Jupiter near the moon Dec. 31, and for Venus somewhat near the crescent Jan. 23.

Jim Van Nuland  
3509 Calico Ave  
S. J. 95124  
(408) 371-1307

Red Spot times

	da	mo	d	h	m	
F	12	31	6	12	PM	
Sa	1	1	11	59	PM	
Su	1	2	7	51	PM	
Tu	1	4	1	38	AM	
Tu	1	4	9	29	PM	
Th	1	6	11	8	PM	
F	1	7	6	60	PM	
Su	1	9	0	47	AM	
Su	1	9	8	38	PM	
Tu	1	11	10	17	PM	
W	1	12	6	8	PM	
Th	1	13	11	56	PM	
F	1	14	7	47	PM	
Su	1	16	1	34	AM	
Su	1	16	9	26	PM	
Tu	1	18	11	4	PM	
W	1	19	6	56	PM	
F	1	21	0	43	AM	
F	1	21	8	34	PM	
Su	1	23	10	13	PM	
M	1	24	6	5	PM	
Tu	1	25	11	52	PM	
W	1	26	7	43	PM	
F	1	28	9	22	PM	
Su	1	30	11	1	PM	
M	1	31	6	52	PM	
W	2	2	0	39	AM	
W	2	2	8	31	PM	
F	2	4	10	9	PM	

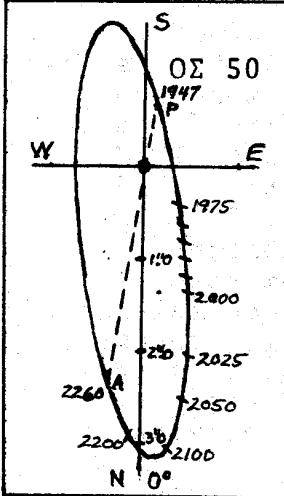
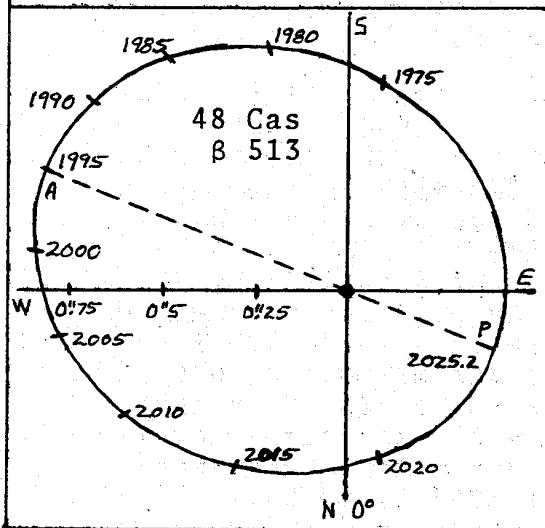
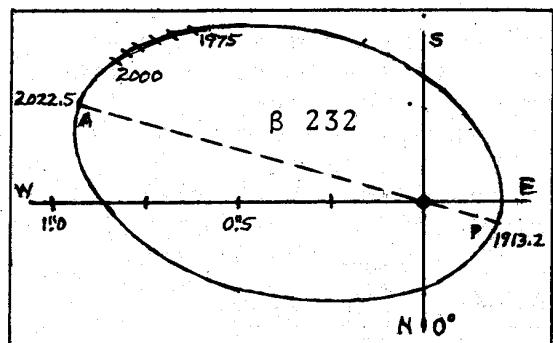
White spot times

	da	mo	d	h	m	
Sa	1	1	0	34	AM	
Sa	1	1	8	24	PM	
M	1	3	2	10	AM	
M	1	3	10	0	PM	
Tu	1	4	5	51	PM	
W	1	5	11	37	PM	
Th	1	6	7	27	PM	
Sa	1	8	1	13	AM	
Sa	1	8	9	4	PM	
M	1	10	10	40	PM	
Tu	1	11	6	30	PM	
Th	1	13	0	16	AM	
Th	1	13	8	7	PM	
Sa	1	15	9	43	PM	
M	1	17	11	19	PM	
Tu	1	18	7	10	PM	
Th	1	20	0	56	AM	
Th	1	20	8	46	PM	
SA	1	22	10	23	PM	
SU	1	23	6	13	PM	
M	1	24	11	59	PM	
TU	1	25	7	49	PM	
TH	1	27	9	26	PM	
SA	1	29	11	2	PM	
SU	1	30	6	53	PM	
TU	2	1	0	38	AM	
TU	2	1	8	29	PM	
TH	2	3	10	5	PM	

The Orbits of Visual Binary Stars . . contributed by Gerald W. Rattley

Elements of the orbits as listed in the Third Catalogue of the Orbits of Visual Binary Stars by W. S. Finsen and C. E. Worley, 1970.

star	1975 pos	P	T	e	a	i	w	$\Omega$
name	RA	dec	yrs	yr	"	'	"	'
$\beta$ 232	00 49.3	+50 29	218.6	1913.2	0.65	0.59	37.0	350.3
48 Cas	01 59.8	+70 48	60.44	1964.78	0.345	0.653	22.8	4.5
$\Omega\Sigma$ 50	03 10.0	+71 28	626	1947	0.52	2.618	103.0	235.0
$\Omega\Sigma$ 52	03 15.2	+65 35	330	1745	0.31	0.386	180.0	65.0



$\beta$  232 (ADS 684) in Cassiopeia; component magnitudes are 8.4 and 8.8 with spectra of F5 and F7. The orbit is a preliminary one computed in 1964 by P. Baize. Apastron passage will occur in 2022 and maximum, 0"97, will occur in 2027. Ephemeris for  $\beta$  232:

1975	233°6	0"79	1990	241°1	0"88
1980	236.3	0.82	1995	243.3	0.90
1985	238.8	0.85	2000	245.4	0.92

48 Cassiopeiae;  $\beta$  513 (ADS 1598); component magnitudes are 4.8 and 6.5 with a system spectra of A6s. This is a definitive orbit computed by W. D. Heintz in 1969. This rapid binary is now opening to a maximum and apastron passage which is due in 1995 after which it will close to minimum and periastron passage, 0"43, in 2025. This system is physically triple, with a 13th magnitude c.p.m. companion at P.A. 51°, separation 23"7, in 1923. This system is 38 parsecs distant from the Sun and has a true mean separation in orbit of 25 a.u. Ephemeris for 48 Cassiopeiae:

1975	170°8	0"57	1990	233°9	0"86
1980	198.4	0.70	1995	248.3	0.88
1985	218.0	0.80	2000	262.9	0.85

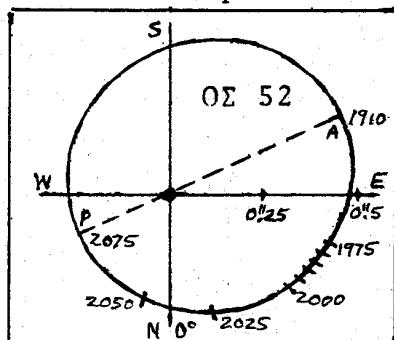
$\Omega\Sigma$  50 (ADS 2377) in Cassiopeia; component magnitudes are 8.4 and 8.4 with the system spectra being F8. This is an indeterminate computation by A. V. Bespalov, 1961. This system is currently widening to a maximum of 3"2 in 2129, and apastron passage is not due until 2260. There is a 13th magnitude companion to this binary, making it a triple, at P.A. 299°, separation 27"2, 1931. Ephemeris for  $\Omega\Sigma$  50:

1975	42°5	0"56	1985	28°0	0"93	1995	21°6	1"28
1980	33.5	0.74	1990	24.3	1.10	2000	19.5	1.44

$\Omega\Sigma$  52 (ADS 2436) in Camelopardalis; component magnitudes are 6.8 and 7.3 with a system spectra of A0n. The orbit is an indeterminate one by W. D. Heintz, 1963. The system was widest, 0"5 in 1910 and is now closing to 0"27 and periastron passage in 2075. Ephemeris for  $\Omega\Sigma$  52:

1975	72°7	0"45	1990	60°7	0"43
1980	68.8	0.44	1995	56.3	0.42
1985	64.8	0.44	2000	51.7	0.41

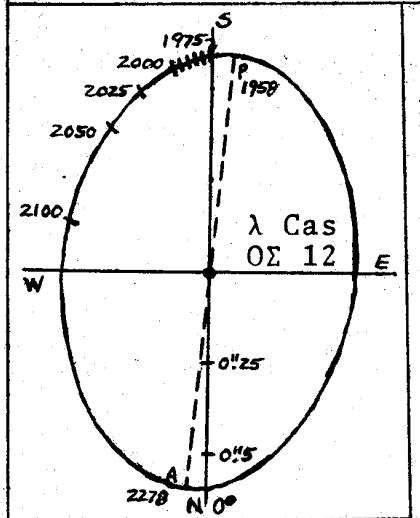
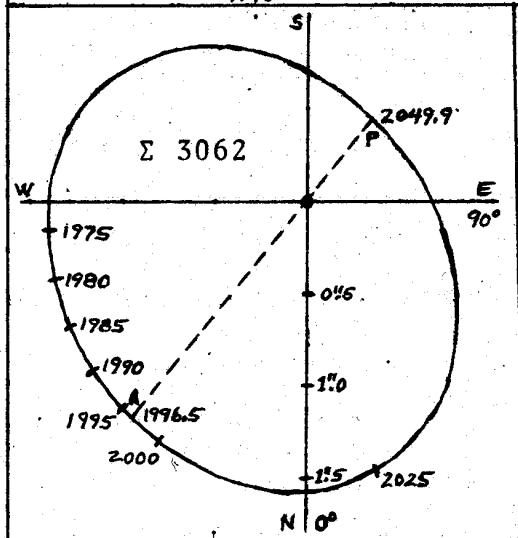
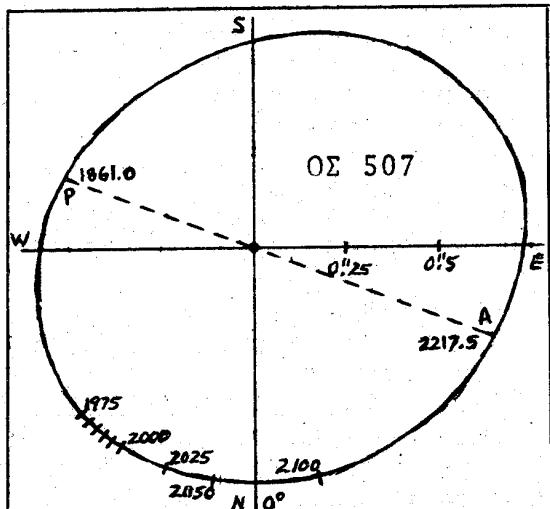
Additional note to  $\beta$  232 above: This is a triple star with the third component being a 10.5 magnitude star at P.A. 296°, separation 26"1, 1961.



The Orbits of Visual Binary Stars . . contributed by Gerald W. Rattley

Elements of the orbits as listed in the Third Catalogue of the Orbits of Visual Binary Stars by W. S. Finsen and C. E. Worley, 1970.

star name	1975 pos RA	dec	P yrs	T yr	e	a "	i °	w °	Ω °
Ω 507	23 47.5	+64 43	713	1861	0.13	0.69	32.0	125.0	120.0
Σ 3062	00 04.8	+58 17	106.83	1943.05	0.45	1.432	44.4	278.8	219.1
λ Cas	00 30.4	+54 23	640	1958	0.0	0.586	47.7	0.0	174.4



Ω 507 (ADS 17020) in Cassiopeia ; the component magnitudes for this system are 6.8 and 7.5. (I have no source for the spectra) The orbit is a premature computation done in 1961 by A. V. Bespalov. This system is now slowly widening to its maximum, 0"75, which will not be reached until around 2300. Apastron will be passed in 2217. This is a triple star, though not a physical one, as it has an optical 8.6 magnitude companion at P.A. 351°, 50"4 separation as measured in 1959. (I have no source for a parallax for this system)

Ephemeris for Ω 507:

1975	313°8	0"64	1990	321°1	0"65
1980	316.3	0.65	1995	323.5	0.65
1985	318.7	0.65	2000	325.9	0.65

Σ 3062 (ADS 61) in Cassiopeia; the component magnitudes of this system are 6.5 and 7.3 with their spectra being dG6 and dG8. The orbit is a definitive one computed in 1957 by P. Baize. This system is currently widening to a maximum of 1"6 which will be reached in 2014, after which it will close to its minimum of 0"6 in 2050. Apastron is due to be passed in 1996. Do not confuse Σ 3062 with the nearby double star Σ 3057 which has a similar appearance. The 1975 position of Σ 3057 is 00 03.6 +58 23. In 1953 the components, magnitudes 6.7 and 9.3, were in P.A. 299° with a separation of 3"7. Their colors are yellow and ashy. Σ 3062 is 21 parsecs from the Sun and has a true mean separation in orbit of 30 a.u. Ephemeris for Σ 3062:

1975	276°4	1"41	1990	308°4	1"47
1980	287.3	1.43	1995	318.4	1.49
1985	298.0	1.45	2000	328.2	1.52

Lambda Cassiopeiae; Ω 12 (ADS 434); component magnitudes are 5.5 and 5.8 with the system spectra being B8. This is a good test for an 8-inch telescope on a good night. The orbit is an indeterminate one computed by W. D. Heintz in 1963. According to this orbit the components passed both a maximum and periastron in 1958 with the next maximum and apastron due to be passed in 2278. Both maxima are 0"59. Minimum separation, 0"40, will be reached in 2118. This system is 143 parsecs distant from the Sun and has a true mean separation in orbit of 84 a. u. Ephemeris for λ Cassiopeiae:

1975	180°9	0"58	1990	186°7	0"57
1980	182.8	0.58	1995	188.7	0.57
1985	184.8	0.57	2000	190.8	0.56

## Rattley rattles

Wow, I can't believe it, I have no corrections to make to my double star articles at this time.

In this Rattley Rattles I would like only to give you the address of where you may write to ask for the catalogue of publications that are available through the California Institute of Technology Bookstore. Listed in this catalogue you will find, in addition to hundreds of slides, that they are the source for obtaining a copy of the "Hubble Atlas of the Galaxies", which I have brought to a few club meetings for you to look through. The address below is the place to write to ask for the free catalogue which will explain how to order the "Hubble Atlas of the Galaxies" and will also list the price (which was \$10.50 when I purchased it earlier this year).

California Institute of Technology Bookstore  
Mail Code 1-51  
San Pasqual Street Near Chester Avenue  
Pasadena, California 91125

I would like also at this time to point out two other sources of fine astronomical publications. First, the club has an agreement with the Sky Publishing Corporation to get discounts for club members on their publications. Club members can contact John Rhodes for more information on this. Also you may write to Sky Publications for a free copy of their catalogue (which is a little booklet called "Scanning the Skies") which lists the books, atlases, catalogues and other items available through them. Their address can be found in Sky & Telescope.

Second, I would like to mention another source of many fine books, atlases, and catalogues on astronomy not available through Sky Publishing (also the club does not have a discount plan with this source, so you'll have to pay full price for these publications, But they're worth it!). This source is Herbert A. Luft. You can obtain a list of the publications offered by him through the address listed in his ad in the December issue of Sky & Telescope, page 461.

Well that's it for now, till next time;

Astronomically Yours;  
Gerry Rattley