

Volume

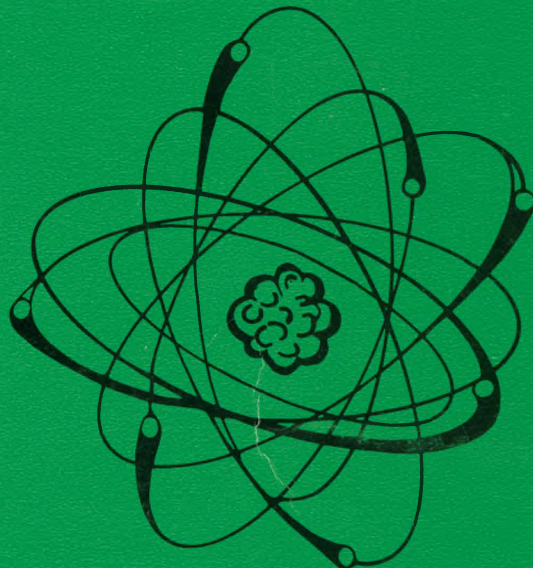
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**October 24, 1983
to
July 12, 1985**

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SCIENCE NOTE BOOK CAHIER DE SCIENCES

name-nom Leo Enright

subject-sujet Observatory Log
Oct. 24, 1983 - July 12, 1985.

HILROY LTD.-LTÉE Toronto M6E 2R9
Made in Canada • Fabriqué au Canada

100 pages
27.6 x 21.3 cm
no 13-210

Observatory Log

- J.D. 2445632.5 - photographed constellations with new Agfachrome 200 film and
Mon. Oct. 24, 1983 observed M57 and β Cyg with C-14 and 9mm Nagler ocular
- photographed lunar craters with C-14.
- J.D. 2445638.5 - In evening, I observed Jupiter with Peter, Linda, David, and Janice.
- Sun. Oct. 30, 1983 Later on a night of excellent visibility I observed with
the C-14 and Easy-Guider used as an R.F.T. to see
M33, M15, M32, and other objects. I observed
NGC 7009 (Saturn Nebula), M57, M27 which was
spectacular with the C-14, M13, and the Veil Nebula (!).
- J.D. 2445639.4 - In afternoon, I observed the sun, seeing
Mon. Oct. 31, 1983 one very small group.
- J.D. 2445639.92 - In the early morning about 5:00 a.m. E.S.T., I observed
Tue Nov. 1, 1983 ~~2445639.08~~ and photographed the crescent moon, Venus, and Mars
which formed a very close group near the
triangle of the constellation Leo.
- J.D. 2445646.5 - I observed with C-8 trying out the new
Mon-Tue. Nov. 7-8, 1983 Lumicon 2" diagonal with 2" and 1 1/2" oculars.
I observed M15, Albireo, M42, M43, and
saw two bright meteors (about Mag. -1)
There was some Auroral glow in the north.
- J.D. 2445651.5 In the evening I observed lunar craters, especially
Sat-Sun Nov. 12-13, 1983 watching the shadows change within the crater
Ptolemaeus (Number 239 on Norton's Lunar Map.)
- J.D. 2445658.2 At noon I observed sunspots seeing very few - two
Sat. Nov. 19, 1983 small ones in an apparent group and possibly two
tiny ones near the limb.

- J.D. 2445672.3
Sat. Dec. 3, 1982
In the afternoon, I observed the solar disk with the C-8 and various oculars but could detect no sunspots whatever.
- J.D. 2445672.5
Sat-Sun Dec. 3, 4, 1983
With the C-8, I observed M42, M43, M77 near δ Cet, NGC 1055 a faint galaxy also near δ Cet.
- J.D. 2445686.4
Sat. Dec. 17, 1983.
In the evening between about 5:00 p.m. and 5:30 p.m. E.S.T., I observed some lunar craters before clouds rolled in again!
- J.D. 2445688.5
Mon. Dec. 19, 1983.
With the C-8 and 11x80 binoculars I observed the moon on a night of a penumbral eclipse. The eclipse was remarkable for a penumbral eclipse because the southern hemisphere was quite dark.
- J.D. 2445689.3
Tue. Dec. 20, 1983
About 3:00 p.m. E.S.T. I observed the sun with the C-8. I observed one sunspot group with one quite large spot.
- J.D. 2445692.3
Fri. Dec. 23, 1983.
About 3:00 p.m. E.S.T. I observed the sun with the C-8, seeing one smaller than average size sunspot in the mid-southern latitude.
- J.D. 2445692.5
Fri. Dec. 23, 1983
About 8:00 p.m. E.S.T. in spite of some haze and cloud, I tried to photograph the rising of Sirius and photographed Orion and Taurus.
- J.D. 2445698.5
Thu-Fri. Dec. 29-30, 1983
On a very clear night, I observed with 11x80 binoculars, observing M36, M37, M38, M31, M33, R Lep (Hick's Crimson Star), and tried to see NGC 1489 (the California Nebula). With the Astroscan I observed M42, and tried and thought I possibly succeeded in detecting (?) the California Nebula or a part of it.

		<u>R.A.</u>		<u>Dec</u>	
Dec. 30	0 ^h U.T.	MARS	13 ^h 29 ^m	45.38 ^s	-7° 38' (near α Vir)
		SATURN	14 ^h 48 ^m	02.186	-13° 48' (near α Lib)
		VENUS	15 ^h 42 ^m	59.49 ^s	-17° 26' (near β Sco)
		JUPITER	17 ^h 40 ^m	15.747	-23° 02' (near midpoint between γ Seg and α Sco)
		URANUS	16 ^h 37 ^m	51.442	-22° 02' (near α Sco)
		NEPTUNE	17 ^h 56 ^m	57.639	-22° 16' (near M20)
Dec. 27		PLUTO	14 ^h 19 ^m	13.916	+3° 45' (in Virgo)

		<u>R.A.</u>	<u>Dec</u>
Jan. 15	Mars	14 ^h 02 ^m	-10° 46'
	Saturn	14 ^h 53 ^m	-14° 07'
	Venus	17 ^h 04 ^m	-21° 07'
	Jupiter	17 ^h 56 ^m	-23° 08'

For the 1th day of the year in 1984

night of

Jan. 7-8

J.D

J.D = 2445699.5 + 17

(17 is to be in U.T. and a decimal)

$\frac{99.5}{15.0}$

-2445707.5

Jan. 8-9

2445708.5

Jan. 9-10

2445709.5

Jan. 15-16

2445715.5

J.D. 2445698.9
Fri. Dec. 30, 1983
^{about}
(5:30-7:00 a.m. E.S.T.)

In the very early morning, I observed and photographed the array of planets in the south-east - Mars (near Spica), Saturn, the Moon, and Venus. I looked for Jupiter but did not detect it as it was to rise shortly before the sun. (Because it was very cold (about -25°C), the camera froze and I broke the cable release trying to force it.)

J.D. 2445699.3
Fri. Dec. 30, 1983

About 3:00 p.m. E.S.T. I observed the sun but did not see a single sunspot at all. I observed with 26^{mm} Hössl eyepiece (77X) and the 15.5 W.A. eyepiece (129X).

J.D. 2445707.3
Sat. Jan. 7, 1984

About 3:55 p.m. E.S.T. I observed the sun noticing two small sunspots.

J.D. 2445707.5
Sat-Sun Jan. 7-8, 1984.

On a very cold evening I opened the observatory roof and tried to photograph craters (Atlas and Hercules) of the crescent moon. It was unsatisfactory because of the cold affecting the camera and the broken cable release.

J.D. 2445709.0
Mon. Jan. 9, 1984.

On a very cold morning I used 11x80 binoculars to observe the array of planets in the south eastern sky - Mars, Saturn, Venus, and Jupiter. I searched for Mercury but did not spot it.

J.D. 2445715.0
Sun Jan. 15, 1984

Well into the morning twilight, I observed Venus, and with 11x80 binoculars, Jupiter and Mercury. I observed from indoors and it was the first time I saw Mercury on the current western elongation.

$$\frac{21}{24} = .875$$

15.875

OTOT. Jan. 21, 1984

Mercury: R.A. $18^h 25^m 19.5^s$

Dec. $-21^{\circ} 50' 18.4''$

Jupiter: $18^h 01^m 16.209^s$

$-23^{\circ} 08' 35.16''$

West
~~on~~
on
Celestial
Sphere.



Jan 21.
East
on
celestial
Sphere

View in C-8

J.D. 2445715.375
Sun. Jan. 15, 1984

About 4:00 p.m. I photographed the sun which I also observed seeing three fairly large sunspots.

J.D. 2445716.30
Mon. Jan. 16, 1984

In the afternoon between 2:00 p.m. and 3:00 p.m., I again observed and photographed the sun. I saw three fairly large spots near the centre of the disc and two very small ones near the limb.

J.D. 2445721.0
Sat. Jan. 21, 1984

In the morning twilight, I observed the planets Mars, Saturn near Spica, Venus, Jupiter, and, with 7x35 binoculars, the planet Mercury also.

J.D. 2445721.3
Sat. Jan. 21, 1984

In the afternoon, I observed the sun, seeing several sunspot groups, one or several major groups about to rotate out of view.

J.D. 2445727.5
Fri. - Sat. Jan. 26-27, 1984

special guest at the observatory:

Franklin C. Juchacz - a beautiful,
dark winter sky!
What more could you ask?

J.D. 2445731.3
Tue. Jan. 31, 1984

In the afternoon, I observed the sun with the C-8 seeing two large groups each with a large sunspot.

J.D. 2445731.5
Tue. Jan. 31, 1983

In the evening I observed with binoculars, seeing M33, M31, and other objects.

J.D. 2445732.3
Wed. Feb. 1, 1983

In the afternoon, I observed sunspots seeing several large groups.

J.D. 2445732.5
Wed. Feb. 1, 1984

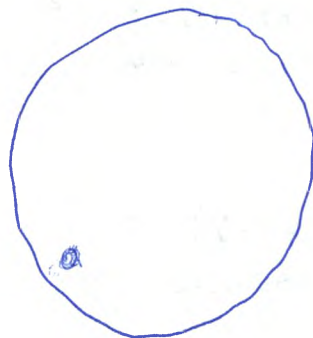
In the evening I observed with 11x80 binoculars, seeing,

0^h U.T.

Feb. 1. = J.D. 2445731.5 = M.J.D. 45731

Feb. 2. = J.D. 2445732.5 = M.J.D. 45732

Feb. 3 = J.D. 2445733.5 = M.J.D. 45733



Moonrise Feb. 16 - about 17^h11^h E.S.T.
(seen about 17^h21 E.S.T.)

Time of Full Moon - Feb. 17 - 004^h U.T.

- observed later near midnight
(very bright)
- Time of Moon at perigee Feb. 17 09^h
(04^h E.S.T.)

Wed.-Thu. Feb. 1-2, 1984 (continued) I am quite sure, Comet Crommelin about $\frac{1}{4}$ of the distance between δ Piscium and γ Piscium. With the C-14, I observed M42 and M43 (Amazing in the Giant Easy Guider and 32^{mm} Etflc used as a Rich Field Adapter.) I also photographed the Pleiades area, Orion area, M33 area with the 85mm f1.8 lens on F-1 camera piggybacked on the C-14.

Thu. Feb. 9, 1984
J.D. 2445740.3
M.J.D. 45738.8

In the afternoon between 2:00 and 2:30^{E.S.T} p.m., I observed and photographed sunspots seeing a long array of spots and groups stretching across the central region of the solar disk.

Thu. Feb. 16, 1984
J.D. 2445747.3
M.J.D. 45746.8

In the afternoon between 2:00 and 2:30 p.m. E.S.T., I observed the sun, seeing one fairly large sunspot group.

Thu.-Fri. Feb. 16-17, 1984
J.D. 2445747.5
M.J.D. 45747.0

In the early evening I watched, naked-eye, as the moon rose over the trees across the lake and later near midnight I also watched the moon near the meridian. Full Moon's precise time occurred between the two events. It was also a Full Moon very close to the time of perigee. Stellar twinkling indicated the "seeing" was not very good.

Mon.-Tue. Feb. 20-21, 1984
J.D. 2445751.5
M.J.D. 45751.0

In the evening I observed briefly because of the cloud cover which rolled in. I observed with 11x80 binoculars seeing M42 and M43, which were excellent because of the transparency, and M45.

Tue.-Wed. Feb. 21-22, 1984
J.D. 2445752.5
M.J.D. 45752.0

On a very clear dark night I observed from the observatory with the C-14 and did some observing with 11x80 binoculars. With

5



S.C. view

the C-14 and Giant Easy-Guider and 2" Diagonal and 32^{mm} Ette eyepiece, I observed M42, M43, the Pleiades nebula, the nebulosity near ϵ Orionis (IC 434 which was more distinct than usual and perhaps some of the nebulosity in the bright nebulosity near the Horsehead Nebula), Hubble's Variable Nebula (NGC 2251), the "Christmas tree" in Monoceros, the Rosette Nebula which could actually be distinguished and the associated cluster of stars NGC 2244, M1, the Trapezium including 2 additional stars, NGC 2371-2 a pair of 11.0 mag. planetary nebulae in Gemini, and NGC 2775, a 10.5 mag. spiral galaxy in ~~Gemini~~ ^{Cancer}. Zodiacal light was clearly visible and extended high into the west-north-western sky.

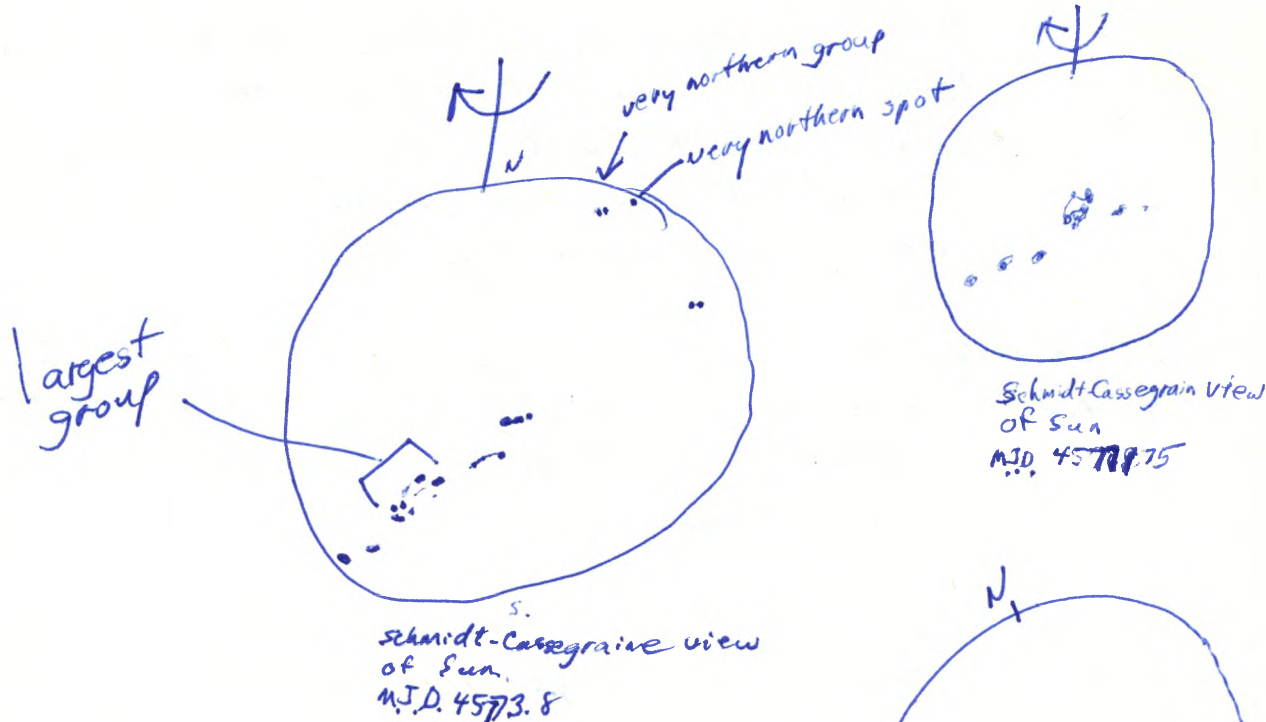
Thu.-Fri. Feb. 23-24, 1984 I observed with 11x80 binoculars and Astroscan. I observed
 M.J.D. 45754.0 M42, M43, M1, Pleiades, RX Lep., Cor Caroli, M31, M51, Mizar, and X Persei; and the star cluster within the Rosette Nebula.

Sun. Feb. 26, 1984 In mid-afternoon I observed sunspots with the C-8, seeing
 M.J.D. 45756.8 three very large groups spread across the disk.

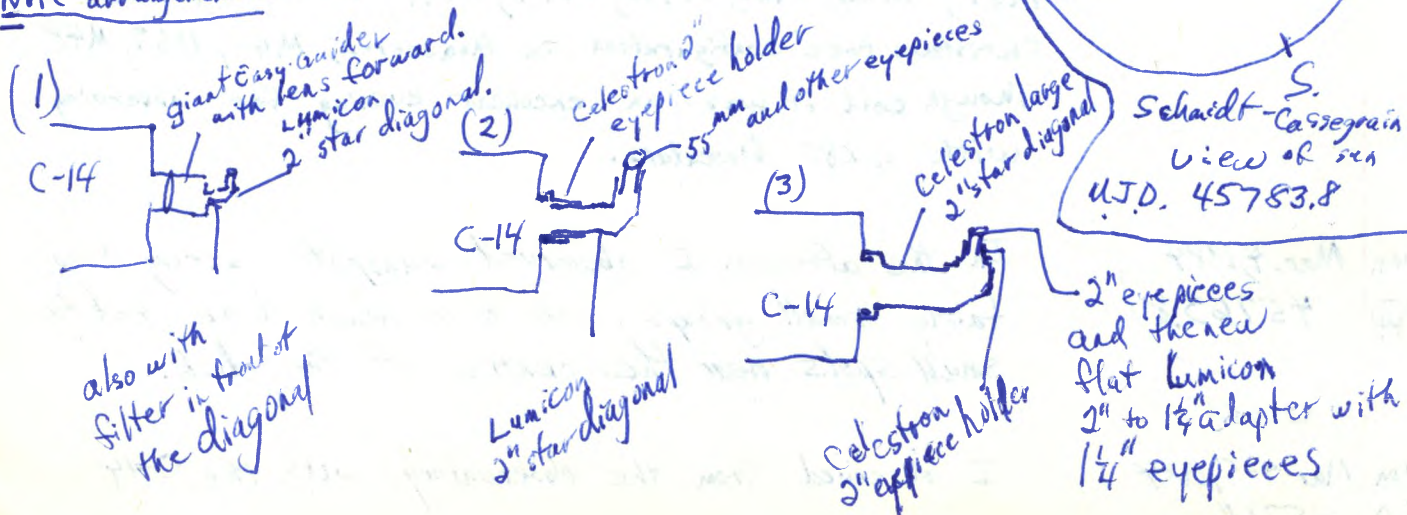
Sat.-Sun. Mar. 3-4, 1984 I observed with 11x80 binoculars, searching for Comet Crommelin
 M.J.D. 45763.0 but at the time I searched it was very low, perhaps too low to be seen from my vantage point. I observed M51, M33, M31, M42, M44, M41, NGC 2244, the 'Christmas tree' configuration in Monoceros, M44, M67, M48. Though cold it was an excellent evening for observing with 11x80 binoculars.

Sun. Mar. 4, 1984 In the afternoon I observed sunspots seeing two
 M.J.D. 45763.8 fairly small groups, one near each limb and two small spots near the centre of the disk.

Sun.-Mon. Mar 4-5, 1984 I observed from the observatory with the C-14
 M.J.D. 45764



Note arrangements:



and with such oculars as the Nagler 9mm (giving 434 power) to try to see the companion of Sirius. Sirius appeared elongated(!) but the sky was hazy. I also observed Castor (α Geminorum) and split it. The western sky remained far too cloudy to see Comet Crommelin.

Fr. Mar. 9, 1984 I observed the sun, seeing a couple of small groups.

M.J.D. 45768.8

Mon. Mar. 12, 1984 At about 1:00 p.m. I observed the sun seeing six
← M.J.D. 45771.75 groups one large and five small ones

Wed. Mar. 14, 1984 Between 2:20 and 2:45 p.m. E.S.T. I observed the sun

← M.J.D. 45773.8

seeing a good number of sunspots including one group and one spot at a very high latitude near the north pole.

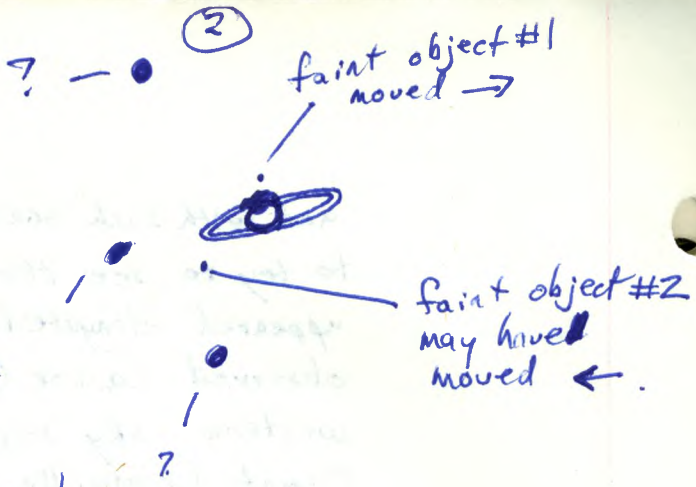
Sat. Mar. 24, 1984 In the afternoon I observed sunspots seeing
← M.J.D. 45783.8 about 8 spots or small groups.

Sat. - Sun. Mar. 24-25, 1984 On a very good night for observing and what seemed
M.J.D. 45784 like the only night for observing in a long time, I observed for two extended periods of time - from about 7:15 p.m. to 8:45 p.m. E.S.T. and 12:15 a.m. to 3:45 a.m. E.S.T. I tested the new 55mm Plössl eyepiece in the C-14 in various arrangements (see ~~diagram~~). Of the arrangements diagrammed, #1 gave a very rich field containing most of the Pleiades, but not all of them at once. I observed M42, M43, M45, the Rosette Nebula seeing part of it faintly, the Christmas tree configuration in Monoceros, M51, Saturn, Mars, later Jupiter, M57. There was Zodiacal light in the early evening. The large part of the evening was spent trying to observe Saturn's predicted occultation of the star SAO 158913 (listed at magnitudes 8.8 and 8.6) - predicted



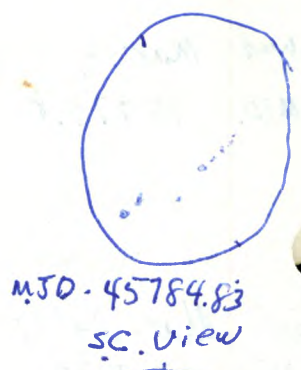
early evening arrangement
(before 9:00 p.m. E.S.T. (2^h U.T.))

? Titan



late night arrangement
after 3:00 a.m. E.S.T.
(8^h U.T.)

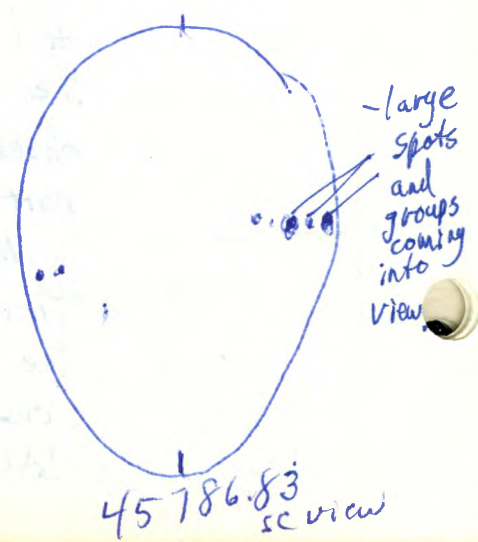
Views are C-14 views with Diagonal. North is up. East is to right. Saturn is currently in retrograde motion and should, therefore, be moving westward or right to left in the ocular and illustration. Was the movement of faint object #1 natural satellite motion or planetary retrograde motion's effect?



MJD-45784.83
sc. view



45785.8
sc. view



45786.83
sc view

for 6^h U.T (1:00 a.m. + E.S.T.). Although I may have thought I momentarily saw a star very close to Saturn in the early evening I cannot boast of having seen an occultation. One object north of Saturn was definitely in a different position in the late evening from the early evening, but it may well have been a satellite of Saturn. (See diagrams on opposite page.) Auroral glow increased at times in the late night and rays were visible at about $8^h 45^m$ U.T. (3:45 a.m. E.S.T.).

- Sun. Mar. 25, 1984 At about 3:00 p.m. E.S.T. I observed sunspots
M.J.D. 45784.83 seeing about 10 spots or small groups.
- Sun-Mon Mar. 25-26, 1984 With the C-8, I observed M42, M43, M45, M51
M.J.D. 45785 NGC 4565 using the 32^{mm} Erfle 2" ocular
and the 55^{mm} Plössl 2" ocular.
- Mon. Mar. 26, 1984 From about 1:30 to 2:00 p.m. E.S.T. I observed sunspots
M.J.D. 45785.8 seeing several small groups and spots.
- Mon-Tue Mar. 26-27, 1984 With the C-14, I observed M45, M42, M43,
N.G.C. 45786 the "Rosette" cluster, M1, M51. On a night
of excellent transparency, I saw and
tried to photograph the Zodiacal Light. In the
early evening, I tried to find Comet
Crommelin but did not succeed in knowingly
seeing it.
- Tue. Mar. 27, 1984 In the afternoon between about 2:20 and 2:40
M.J.D. 45786.83 p.m. E.S.T. I observed and photographed
sunspots seeing several large ones or groups
coming into view
- Tue.-Wed Mar. 27-28, 1984 In the evening I observed with the C-14
M.J.D. 45787.



M.J.D. 45787.8

S.C. View (with diagonal)



just
appeared

M.J.D. 45789.875

S.C. View
(with diagonal)



M.J.D. 45790.8
(S.C. View)

and while viewing with the 32^{mm} Erfle eyepiece I saw Comet Crommelin very definitely though it was faint and diffuse, and it was located at about R.A. $4^h 49.5^m$ Dec. $-15^\circ 10'$ (2000.0 coordinates.) I was able to see it by plotting its position on the Tirion Atlas from a set of coordinates given in Sky and Telescope magazine. It may have been about 11th magnitude. Later I observed M1, M42, M43, M51, and the cluster associated with the Rosette Nebula. Zodiacal Light was visible. During my observing period the intensity of the glow of the Aurora Borealis increased noticeably.

- (5)
- Wed. Mar. 28, 1984
M.J.D. 45787.8 At about 2:00 p.m. E.S.T. I observed and photographed the sun, seeing 5 large spots or groups that had come into view on the disk.
- Fri. Mar. 30, 1984
M.J.D. 45789.875 At about 4:00 p.m. E.S.T. I observed and photographed the sun seeing 5 large spots or groups further across the solar disk from two days ago. Two small spots had just appeared.
- Sat. Mar. 31, 1984
M.J.D. 45790.8 At about 2:00 p.m. E.S.T. I observed and photographed the sun seeing the group of large spots further across the disk.
- Sat-Sun. Mar. 31, - Apr. 1, 1984
M.J.D. 45791 On a night with fairly good transparency and fairly good seeing I observed Mercury (with the eye) in the early evening. It was very bright and quite high (for Mercury) in the north-west. It was in the constellation Aries. Later I searched for Comet Crommelin near μ Lep, but do not claim to have clearly seen it. Zodiacal Light was quite clear. With the C-14, I also observed γ Leonis,



45791.75 (s.c.view)



45792.875 (s.c.view)



45793.75 (s.c.view)



45794.75 (s.c.view)

Is the δ Draconid
meteor shower
intensifying?

γ Virginis, Saturn, Mars, M13, M51, and some of the area in Virgo near where Pluto is to be found (with the C-14 or the Linder or 11x80 binoculars) but did not conduct an intensive search. An interesting Aurora was evident especially from about 8:00 p.m. to 8:40 p.m. E.S.T., and again about midnight. 5 or 6 meteors were seen possibly members of the δ Draconids; one was about -3 magnitude

Sun. Apr. 1, 1984 About 1:30 I observed and photographed sunspots
M.J.D. 45791.75 seeing several very large ones near the centre of the disk.

Sun.-Mon. Apr. 1-2, 1984 In the evening, in spite of some clouds I saw
M.J.D. 45792 Mercury using 11x80 binoculars.

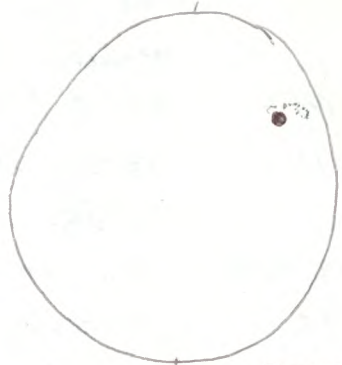
Mon. Apr. 2, 1984 At about 4:00 p.m., in spite of broken cloud I
M.J.D. 45792.875 observed and photographed sunspots.

Mon.-Tue. Apr. 2-3, 1984 At about 8:00 p.m. I observed and photographed
M.J.D. 45793 a very interesting Aurora. There were rays and spikes and a prominent arc and briefly two arcs. The azimuth of the Aurora was quite extensive, extending from north-west to north-east. Several meteors were seen, perhaps members of δ Draconids.

Tue. Apr. 3, 1984 In the early afternoon, I observed and photographed
M.J.D. 45793.75 sunspots. There were three large groups and one group at a high latitude still.

Tue.-Wed. Apr. 3-4, 1984 In spite of clouds it was possible to observe some
M.J.D. 45794 Aurora in the evening in the north.

(b) Wed. Apr. 4, 1984 In the early afternoon, I observed and photographed
M.J.D. 45794.75 sunspots. There were two large groups and one group at a high latitude still.



45801.875
(S.C. view)



M.D. 45826.8

S.C. view

Sun.-Mon. Apr. 8-9, 1984 Throughout the evening there was a large Auroral arc and
M.J.D. 45799 glow in the north. For a while a large spike was seen
in the north-west.

Mon. Apr. 9, 1984 At about 4:00 p.m. I observed and photographed the
M.J.D. 45799.875 solar disk, seeing not a single sunspot.

Wed. Apr. 11, 1984 At about 4:00 p.m. I observed and photographed the
M.J.D. 45801.875 solar disk, seeing one large grouping of sunspots that
had come into view.

Wed.-Thu. Apr. 11-12, 1984 On a night of good seeing I observed and
M.J.D. 45802 photographed lunar craters on an 11-day old moon
when the Crater Cassendi was near the terminator.
I also observed M42, Castor, and Saturn.

Sat. Apr. 14, 1984. Pete Jedicke - guest at the observatory.

Fri.-Sat. Apr. 20-21, 1984 - On a clear night I did some casual naked-eye observing.
M.J.D. 45811

Sat.-Sun. Apr. 21-22, 1984 - I did some naked eye observing in Read.
M.J.D. 45812

Wed.-Thu. Apr. 25-26, 1984 - I observed an outstanding Auroral storm
M.J.D. 45816 with flaming Aurora to the zenith.

Sat.-Sun. May 5-6, 1984 - As part of the Astronomy Day observances in Kingston
M.J.D. 45826.0 I setup the Astroscan on a tripod west of the
Cataraque Town Centre. A good number of people
came out to observe. I observed lunar craters,
Mars, Saturn, Alcor and Mizar

Sun. May 6, 1984 - In the afternoon, I observed the solar disk
M.J.D. 45826.8 seeing one sunspot group coming into view.



M.J.D. 45827.7

S.C. view



M.J.D. 45830.8

S.C. view



M.J.D. 45844.95

S.C. view

- Mon. May 7, 1984
M.J.D. 45827.7
In the early afternoon, I observed and photographed the solar disk, seeing one large sunspot group that had come into view.
- Tue. May 10, 1984
M.J.D. 45830.8
At about 3:00^{PM} E.D.T., I observed and photographed the solar disk with its large grouping of sunspots
- Sat.-Sun. May 12-13, 1984
M.J.D. 45833.0
In spite of some clouds, I observed the 12-day-old moon, Mars, Saturn, Castor, and γ Leows. With the 9mm Nagler ocular in the Astroscan and the C-8 I could see 4 moons of Saturn and occasionally a fifth one.
- Mon.-Tue. May 14-15, 1984
M.J.D. 45835.0
Clouds and haze prevented seeing very much of the Penumbral Lunar Eclipse that occurred at this Full Moon and which was at mid-eclipse at 4:40 U.T. (12:40 E.D.T.) However, after 5:14 U.T. (1:14 E.D.T.) it was clear enough to view the moon and with 7x35 binoculars, a slight darkening in the Fourth Quadrant of the moon could be detected.
- Wed.-Thu. May 16-17, 1984
M.J.D. 45837.0
With the Astroscan both before and after moonrise, I spent a short while observing, seeing Mars, Saturn, M13 and M92.
- Sun.-Mon. May 20-21, 1984
M.J.D. 45841.0
While observing naked-eye at Read, I saw some Aurora extending up over 50° and with some flaming.
- Thu. May 24, 1984
M.J.D. 45844.95
At about 7:00 p.m. E.D.T., I observed the sun seeing a row of sunspots near the centre of the disk.
- Sat.-Sun. May 26-27
M.J.D. 45847.0
On a night that was very good for observing at least



M.J.D. 45847.75

S.C. View

until it became cloudy about 1:00 a.m. E.D.T., I observed in the observatory with the C-14, seeing Mars and Saturn and photographing them, and also M51, M13, and M4.

Sun. May 27, 1984
M.J.D. 45847.75

About 2:15 p.m. E.D.T., I observed and photographed sunspots, seeing a fair number in a fairly long "row" on the solar disk.

Wed. May 30, 1984
M.J.D. 45850.6

On Eclipse Day (date of Annular Solar Eclipse in S.E. United States and a partial eclipse here with 77% obscuration) I observed at school using the Astroscan and 15^{mm} eyepiece for solar disk projection. It was very cloudy and we caught only several fleeting glimpses of the sun between 12:15 p.m. and 12:45 p.m. E.D.T. (Time of the eclipse here was from about 11:23 a.m. to 2:17 p.m. E.D.T. with maximum at about 12:53. After 1:00 p.m. E.D.T. at home I prepared to photograph it with the C-8 and sun filter but clouds hindered me until about 2:05 and between then and the end of the eclipse I managed 5 or 6 photographs. Interesting eclipse, but the clouds!! (At about 12:40, the ~~sun~~^{moon} moved over a group of sunspots.

Fri.-Sat. Jun. 1-2, 1984
M.J.D. 45853.0

I observed with the C-14 seeing the crescent moon, Mars, Saturn, Jupiter (and photographing the planets using eyepiece projection and the 15.5^{mm} eyepiece. I also observed M27, M57, M8, M20, M13, and a galaxy (probably NGC 4565) and e Lyrae. It was a night with excellent transparency but fairly poor seeing and dewing on the telescope was a severe problem

M.J.D. 45854.8 S.C. view

45853.83

S.C. view

M.J.D. 45854.8

S.C. View.

M.J.D. 45856.75

S.C. view.

M.J.D. 45857.96

S.C. View.

M.J.D. 45858.83

S.C. view

M.J.D. 45859.75

S.C. view.

M.J.D. 45860.8

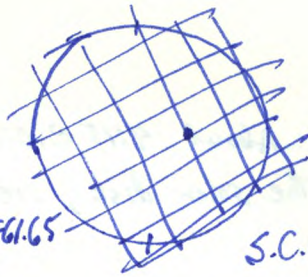
S.C. view

- Sat. June 2, 1984
M.J.D. 45853.83 About 4:15 E.D.T. I observed and photographed (1)
the solar disk, seeing a row of sunspots.
- Sun. June 3, 1984
M.J.D. 45854.8 About 3:00 p.m. E.D.T., I observed and photographed (2)
sunspots.
- Mon. June 4, 1984
M.J.D. 45855.8 About 3:00 p.m. E.D.T. I observed and (3)
photographed sunspots.
- Mon.
Tue
M.J.D. June 4-5, 1984
45856.0 In spite of haze I used the Astroscan to observe the
crescent Moon, Mars, Saturn, Alcor and Mizar, & Lyrae.
- Tue. June 5, 1984
M.J.D. 45856.75 Between about 1:40 p.m. E.D.T. and 2:00 p.m. E.D.T., I
observed and photographed sunspots. (4)
- Wed. June 6, 1984
M.J.D. 45857.96 At about 7:00 p.m. E.D.T. I observed and photographed
the solar disk seeing two sunspot groups. (5)
- Thu. June 7, 1984
M.J.D. 45858.83 Between about 4:30 and 4:40 p.m. E.D.T., I
observed and photographed sunspots, seeing (6)
one main group near the centre of the disk.
- Fri. June 8, 1984
M.J.D. 45859.75 About 2:00 p.m. E.D.T. I observed sunspots seeing one (7)
group near the centre of the disk and one other
tiny spot.
- Sat. June 9, 1984
M.J.D. 45860.8 At about 3:00 p.m. E.D.T., I observed and photographed (8)
sunspots, seeing one group near the centre of the
disk.
- Sat-Sun. June 9-10, 1984
M.S.D. 45861.0 Between 10:00 and 11:00 p.m. I observed and photographed
the Moon, Saturn, and Mars which were close enough
in or near the constellation Libra to be photographed with
the 200 mm lens. For observing I used the Astroscan.



M.J.D. 45866.65

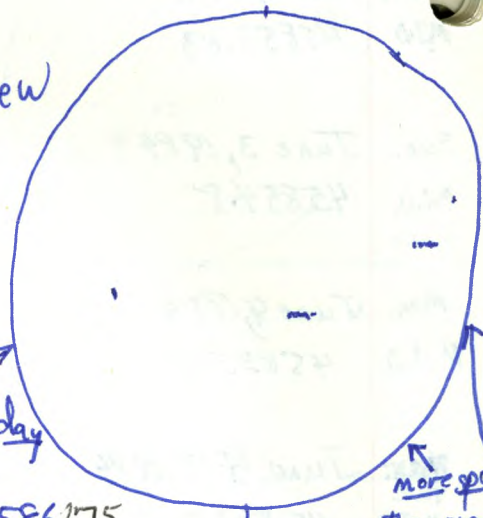
- tiny group with filiculae just appeared.



M.J.D. 45866.65

S.C. View

S.C. view

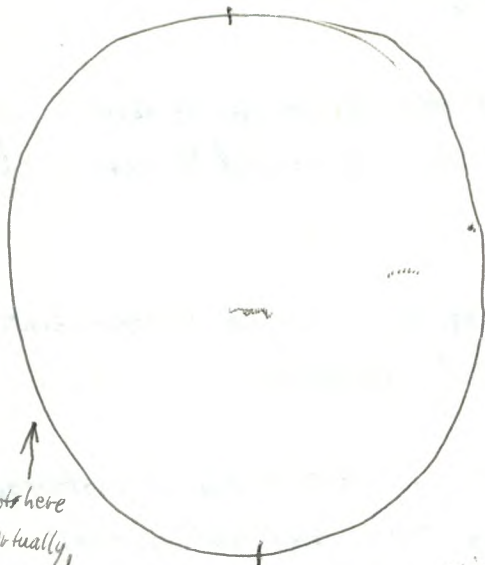


Smaller than previous day

M.J.D. 45866.75

S.C. View

more spots than previous day



Spots here have virtually disappeared

S.C. View

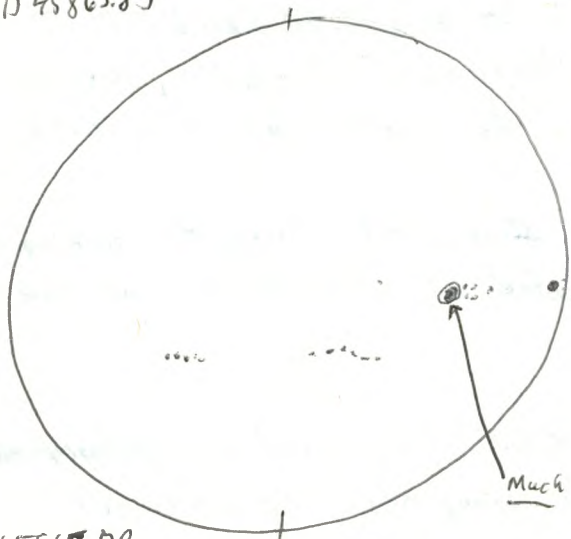
M.J.D. 45866.83



45866.73

S.C. view

group has developed larger spots



New group has appeared

Much larger spot has developed

M.J.D. 45866.73

S.C. view

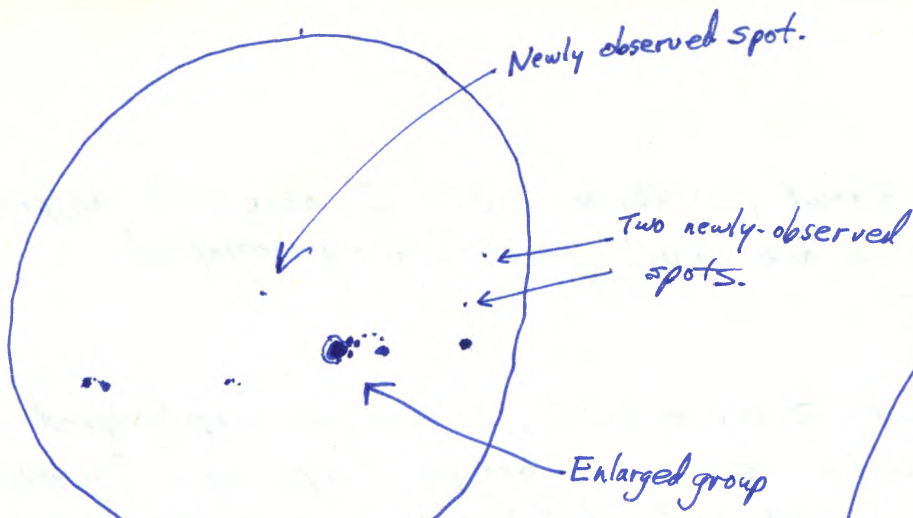


M.J.D. 45866.77

Group seems to be becoming larger.

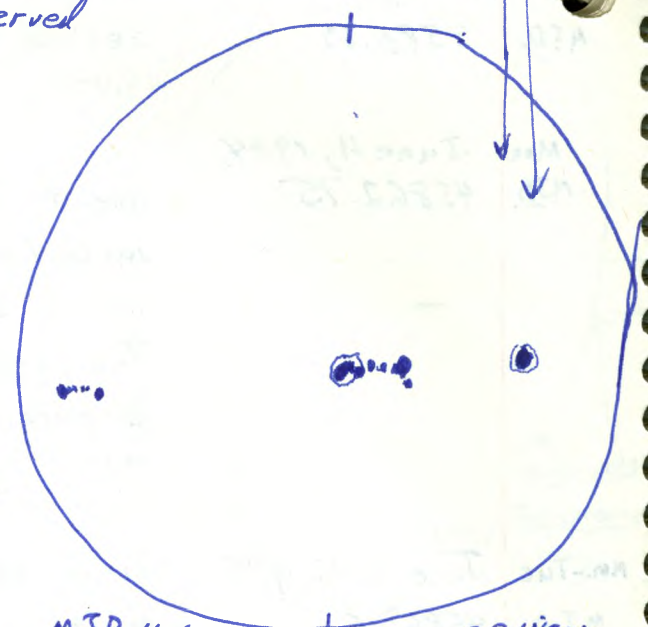
Group perhaps is smaller

- Sun. June 10, 1984
M.J.D. 45861.65
At about 12:40 p.m. E.D.T. I observed sunspots⁽⁹⁾ seeing one small group. I also photographed.
- Mon. June 11, 1984
M.J.D. 45862.75
About 2:00 p.m. E.D.T., I observed and photographed⁽¹⁰⁾ sunspots seeing 4 groups (or perhaps 3 groups and a single spot that had just come into view). The one ~~spot~~^{group} was considerably smaller than on the previous day, and two groups were larger or more numerous than on the previous day.
- Mon.-Tue. June 11-12, 1984
M.J.D. 45863.0
With the Astroscan, I observed the Moon, Saturn, Mars, γ Leonis, Alcor and Mizar, and Albireo.
- Tue. June 12, 1984
M.J.D. 45863.83
About 4:00 p.m. I observed and photographed sunspots⁽¹¹⁾ seeing 3 small groups.
- Wed. June 13, 1984
M.J.D. 45864.73
Between 1:30 p.m. and 2:00 p.m. E.D.T., I observed and⁽¹²⁾ photographed sunspots, seeing three groups.
- Thu. June 14, 1984
M.J.D. 45865.73
(I received the Astro-Physics Drive Corrector.)
At about 1:30 p.m. E.D.T. I observed and photographed⁽¹³⁾ sunspots seeing 4 groups, one with a much enlarged spot.
- Fri. June 15, 1984
M.J.D. 45866.77
Between 2:30 and 3:00 p.m. ^{E.D.T.} I observed and photographed⁽¹⁴⁾ sunspots, seeing 4 groups, one of which was now quite large.
- Fri.-Sat. June 15-16, 1984
M.J.D. 458
Before moonrise I observed Saturn and at least 5 moons including Titan which was near Eastern Elongation, Mars whose N. Pole Cap was quite distinct, Jupiter whose four Galilean Moons were on one side, M13, M92, M51.
A fairly spectacular Aurora developed about 11:30 p.m. E.D.T. and lasted for a couple of hours (at least, probably), but did not seem as intense after the first half-hour or so, perhaps partly because of the moonlight. The Aurora



M.J.D. 45867.54 S.C. view.

Spots seen yesterday seem to have disintegrated



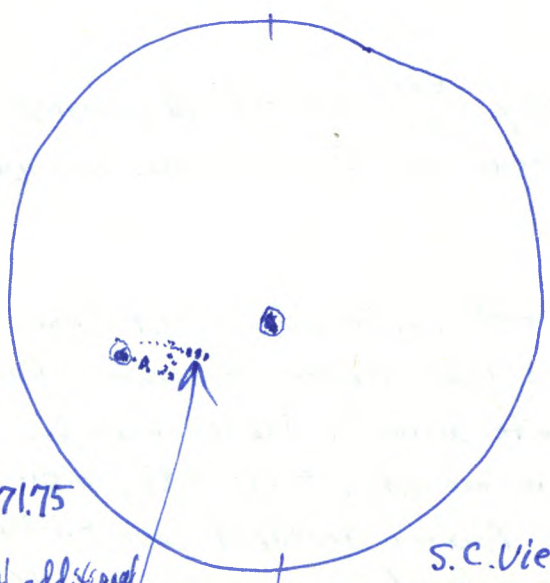
M.J.D. 45868.83 S.C. view.



M.J.D. 45869.93
 (cloudy - disk seen only briefly when I was trying to photograph it.)



M.J.D. 45870.75 S.C. view.



M.J.D. 45871.75
 several additional spots seem to have been added to the large group.

developed from double arcs and contained some intense spikes and flaring. I photographed it. It was probably the best one I had seen so far this year.

Sat. June 16, 1984 At about 9:00 a.m. E.D.T., I observed and photographed (15)
M.I.D. 45867.54 sunspots, seeing a further enlarged group and 3 newly observed spots.

Sat.-Sun. June 16-17, 1984 At the Tamworth Boy Scout and Cub Campsite, I had an
M.I.D. 45868.0 observing session using the Astroscan to observe Saturn, Mars, Jupiter, M57, M13, Alcor and Mizar, ~~and~~ Albireo, and the moon. The session ended about 1:20 a.m. E.D.T.

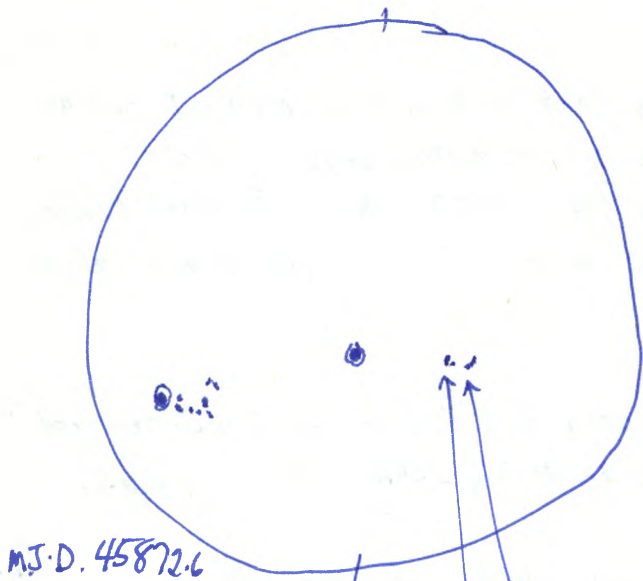
Sun. June 17, 1984 Between about 4:00 and 4:30 p.m. E.D.T., I observed (16)
M.I.D. 45868.83 and photographed sunspots, seeing three groups.

Mon. June 18, 1984 Because of the very cloudy weather, I did (17)
M.I.D. 45869.93 not have much luck when trying to observe the sun between 2:30 p.m. E.D.T. and 3:00 p.m. E.D.T. About 6:30 p.m. E.D.T., I was able to take a few photographs of the sun.

Tue. June 19, 1984 At about 2:00 p.m. E.D.T., I observed and (18)
M.I.D. 45870.75 photographed the sun, seeing two groups of sunspots (one very large group and one large spot).

Wed. June 20, 1984 Between 2:00 and 2:30 p.m. E.D.T., I observed and (19)
M.I.D. 45871.75 photographed the sun, seeing two groups of sunspots one of which seemed to have grown and the other being actually only one spot probably.

Wed.-Thu. June 20-21, 1984 On a night of splendid transparency and fair seeing
M.I.D. 45872.0 I observed Mars, Saturn, Jupiter (after rising with two

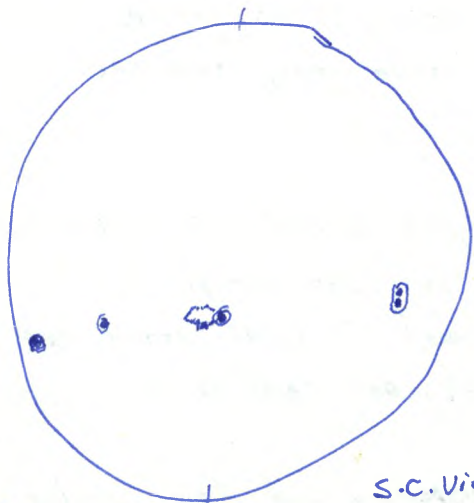


Two small new groups have appeared

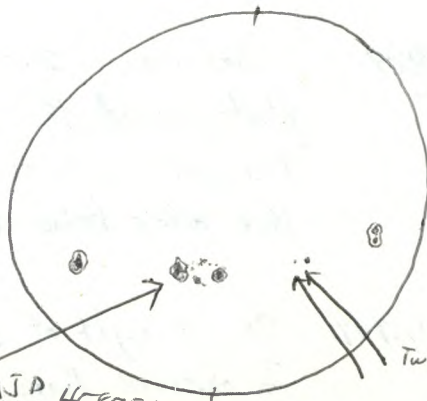


Group has diminished.

Spot or group has appeared



Spot at end of group has enlarged.



Two new spots

μ UMa - spectroscopic binary
 → not listed as an optical double in Bannan & nearby galaxy (NGC 3184)

β Sco - mag.: 2.63 and 4.92
 sep. " 13.7
 P.A. ° 23

ν Sco - "double-double" (quadruple)
 mag.: 4.2, 6.2
 7, 8
 Separ 1.2 and 2.3
 P.A. 2° 336°

moons visible at this time), Arcturus, Spica, γ Leonis, γ Virginis, Cor Caroli, Mizar and Alcor, M51, μ Ursae Majoris (whose splitting was questionable, but which ~~was~~ ^{seemingly} elongated with the 5mm. eyepiece - at 782X), M27, M57, Jupiter (with one moon visible at this time - one in transit and two in eclipse or occultation), Albireo, β Scorpii (the double), ν Scorpii (the double-double in Scorpius), M4, NGC 6144 (the faint cluster near Antares, β Librae (Zubeneschamali, "the green star"), ϵ Herculis (an excellent double), α Herculis, α Ophiuchi, and ^(206X) M8. Most observing was done with the 19mm Wide Field ocular.

Thu. June 21, 1984 At about 12:40 p.m. E.D.T and again between 3:30 and
 M.J.D. 45872.6 4:00 p.m. E.D.T., I observed the solar disk and
 photographed it. Two small spots or groups of sunspots
 had appeared. (20)

Fri. June 22, 1984 Between 1:30 p.m. E.D.T. and 2:00 p.m. E.D.T., I observed (21)
 M.J.D. 45873.73 and photographed the sun, seeing four groups of
 sunspots or spots well spread out across the disk.

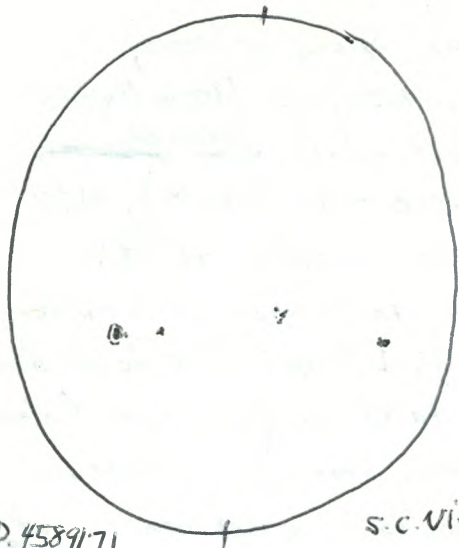
Sat. June 23, 1984 Between 1:30 p.m. E.D.T. and 2:00 p.m. E.D.T., I observed (22)
 M.J.D. 45874.75 and photographed sunspots seeing four spots or groups.

Sat.-Sun. June 23-24, 1984 For a short while after dark I tried to observe
 M.J.D. 45875.0 but the clouds moved in. I managed to observe Mars
 and Saturn.

Sun. June 24, 1984 Between 4:30 p.m. E.D.T. and 5:15 p.m. E.D.T., I observed (23)
 M.J.D. 45875.875 and photographed sunspots.

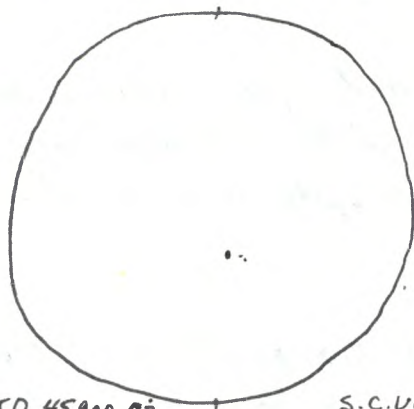
Tue.-Wed. June 26-27, 1984 After dark I spent a short while observing Mars,
 M.J.D. 45878.0 Saturn and Jupiter with the Astroscan.

Sat.-Sun. July 7-8, 1984 Using the C-8 outside the observatory I observed lunar
 M.J.D. 45889.0 craters, Jupiter, Mars, Saturn, M13, Albireo, Alcor and Mizar,



M.S.D. 45891.71

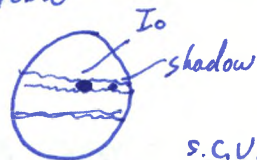
s.c. View



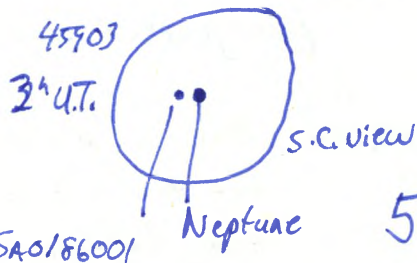
M.J.D. 45900.83

s.c. view

M.J.D. 45903.0



s.c. View



SAO186001



5h UT.

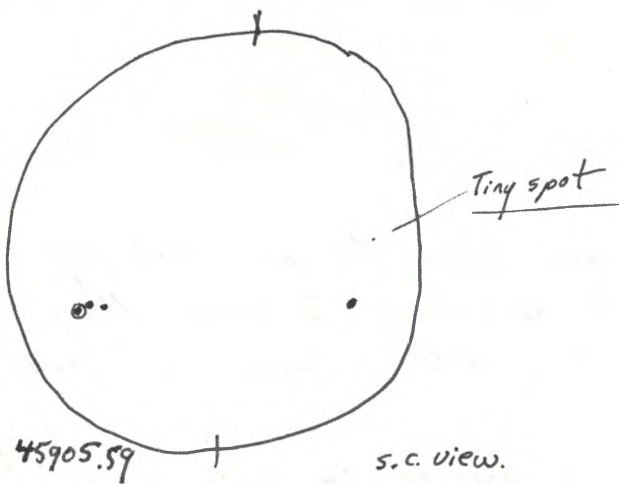
SAO186001 Neptune

In these s.c. view diagrams, the planet is moving from right to left toward the star. The natural view would show left-to-right retrograde movement of the planet.

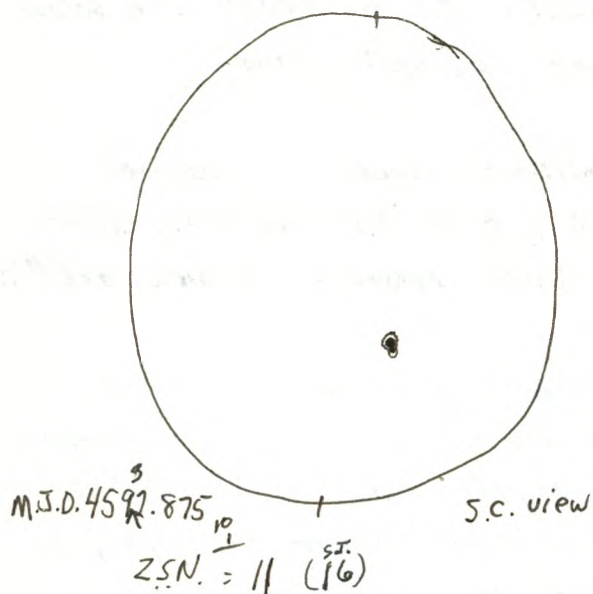
An occultation was predicted for South America and Hawaii for 7^h 37^m - about 1^h 30^m after I stopped watching. They were very close.

and M57.

- Mon.-Tue July 9-10 Using the C-14 and mainly the new Wide Angle 40^{mm}
M.J.D. 45891.0 TeleVue ocular, I observed Jupiter, Mars, Saturn,
lunar craters, M13, M57, ϵ Lyrae, α Herculis
- Fri. July 13, 1984 After 1:00 p.m. E.D.T. I observed sunspots, seeing four
M.J.D. 45894.71 groups.
- Fri.-Sat. July 13-14, 1984 While driving home from the Kingston Centre meeting
M.J.D. 45895.0 I observed an Auroral display in the north with
a number of colourful spikes, reddish or purple
in colour
- Thu. July 19, 1984 At about 4:00 p.m. E.D.T. I observed the solar
M.J.D. 45900.83 disk seeing only one sunspot group.
- Thu.-Fri. July 19-20, 1984 In spite of intermittent clouds I observed
M.J.D. 45901.0 Jupiters, Saturn, Mars, M57, M27, M13, and M51, Albireo
and the area of the North America Nebula, and M4.
- Sat.-Sun. July 21-22, 1984 On a night of good transparency but mediocre seeing, I
M.J.D. 45903.0 observed using the C-14 and the 11X80 binoculars, observing
Mars, Saturn, Jupiter during the transit of Io and its
shadow, M13, M57, Uranus which was near ω Oph., and
best of all the planet Neptune which was near M20 as it
approached very close to the 8.7 mag. star ^{SAO} 186001, Albireo, M31, NGC 6210,
Veil Nebula
- Sun. July 22, 1984 Guests from Syracuse and London, Ont.
Frank Schmittle SAO ~~improves~~
Dennis Sebastian - Eric Clinton
Sue Rugelis - Pete Jedick
Roberta Dungey -
Mark Dungey -
Michael Goldsman - Dianne V. Kapitanis



July 25-26: -
 I saw first meteor of the
 year I believed was a
 Perseid.



Aug. 17-18, 1984:
 Peter Jedicke, David Levy, and I
 observed briefly from Peter's
 balcony in London seeing
 Jupiter and the moon.

Aug. 19-20, 1984:
 on a clear night, I observed
 briefly naked-eye.

- Tue. July 24, 1984
M.J.D. 45905.59 At about 10:30 a.m. E.O.T., I observed the sun seeing three sunspots or groups.
- Wed.-Thu. July 25-26, 1984
M.J.D. 45909.0 After giving a talk on Astronomy to the ~~World~~ Canada-World Youth Group at Read Hall, I observed with some members of the group, seeing Jupiter, Saturn, M31, M13 using the Astroscan. I also pointed out the constellations that were visible. The night before I also observed at Read using the Astroscan.
- Thu.-Fri. Aug. 2-3, 1984
M.J.D. 45915.0 With the C-14, I observed Mars, Saturn, and Jupiter and some lunar craters. I then tried to photograph them and some areas of the Milky Way but after only two photographs of the Milky Way region, clouds rolled in.
- Sat.-Sun. Aug. 18-19, 1984
M.J.D. 45931.0 Guest at the observatory:
David H. Levy
- Mon. Aug. 20, 1984
M.J.D. 45932.875 About 5:00 p.m. E.O.T., I observed the sun seeing only one medium-size spot.
- Mon.-Tue. Aug. 20-21, 1984
M.J.D. 45933.0 Guests at the observatory:
W. Hubbs R. H. Ichas
On a very clear night with fairly good seeing, we observed Jupiter, Saturn, Mars, M13, M57, M27, and χ Perseus, M31, M51, β Cyg., ϵ Lyrae, M8, and the Veil Nebula. Later I also observed the central part of M33.
- Tue.-Wed. Aug 21, -22, 1984
M.J.D. 45934.0 On a night of excellent transparency and fairly good seeing, I observed outside the observatory with the C-8, observing M31, M57, M27, Cor Caroli, Mizar, M13, M92, Jupiter, Saturn, Mars, β Cyg, Col 399, M22, M11, M51. Later in the observatory, I observed and photographed with the C-14 using the Drive Corrector and Easy-Guider to attempt to photograph M27 and M57.

Easy-Guider with lens forward - reticle eyepiece in holder and part way out.

" " " back behind diagonal - reticle in 2nd holder and part way out

I found it necessary to use the second holder.



Fri.-Sat.

Aug. 24-25, 1984

M.I.D.

45937.0

After the R.A.S.C. Meeting, at the R.M.C. Parking lot, our group observed with several telescopes and binoculars seeing M27, M57, M13, M31, Saturn, ϵ Lyrae, M92, M11, and M22. At home afterward, under skies of excellent transparency but poor seeing, I photographed a number of constellation areas.

Sat.-Sun.

Aug 25-26, 1984

M.I.D.

45938.0

On a night with cirrus cloud which made transparency quite poor, at least for most of the time I was observing, I observed Jupiter paying particular attention to the shadow transit of Callisto which was apparent near the north pole of the planet. The Great Red Spot was perhaps seen in ~~one~~ of the bands but the colour was not outstanding in spot. I also observed M57, M13, M31, β Cygni. After I had finished observing, the clouds seemed to have largely dissipated and the sky seemed clearer.

Thu.-Fri.

Aug 30-31, 1984

M.I.D.

45943.0

On a night with good transparency but poor seeing I observed with the C-14 and spent a considerable while doing astrophotography with the C-14 and hypersensitized Fujichrome 400 film. I observed lunar craters, locating Crater Beals (formerly called Reimann A) at a time of a favourable positive longitudinal lunar libration. I also observed Saturn, Mars, Jupiter, & Hercules, M13, M31, β Cygni, M27, M57. I photographed areas along the Milky Way and M27 and M57 and M31.

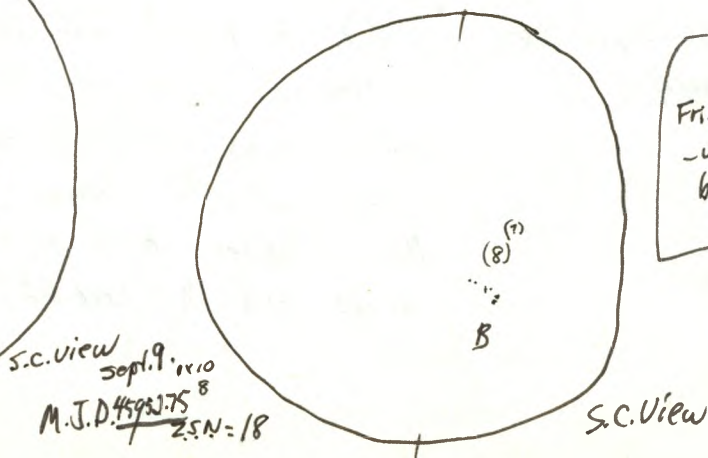
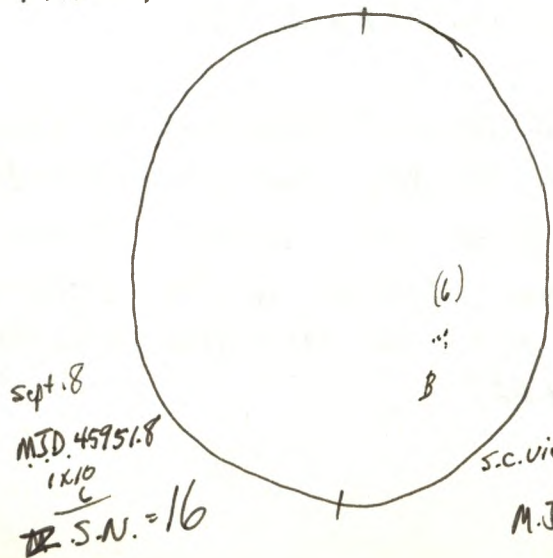
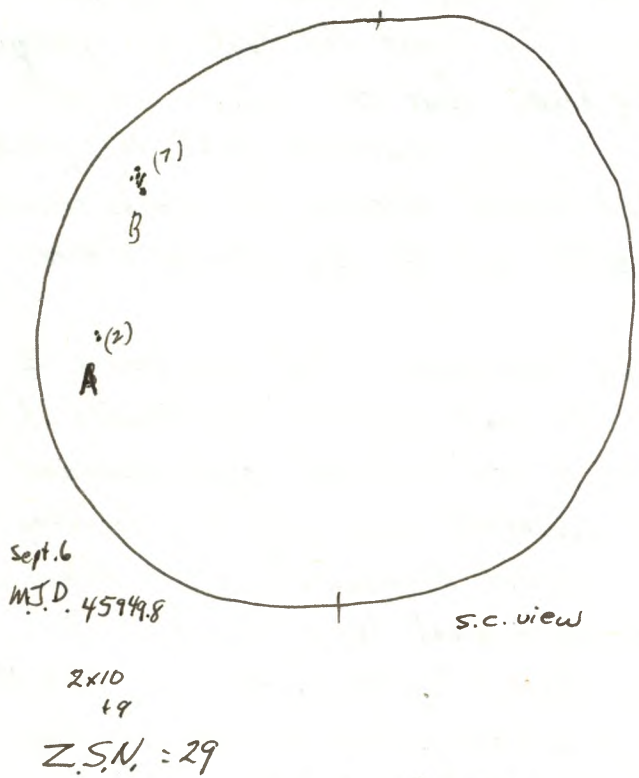
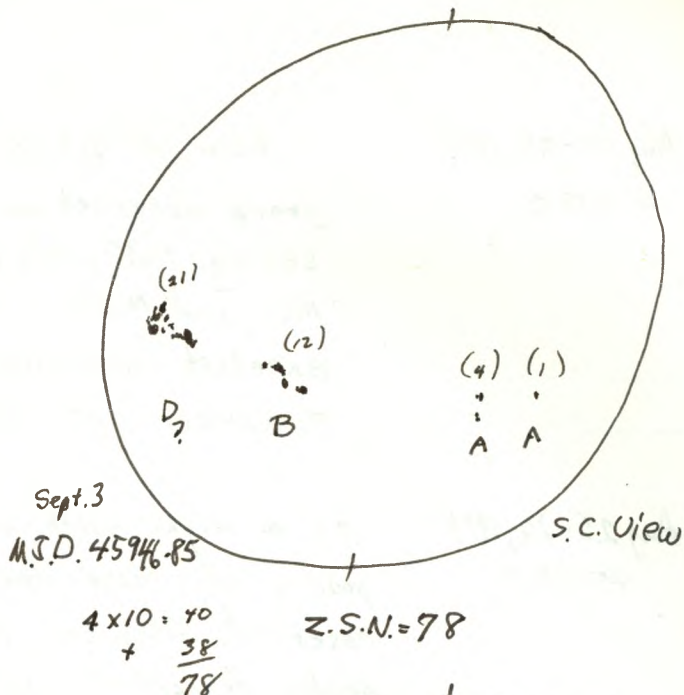
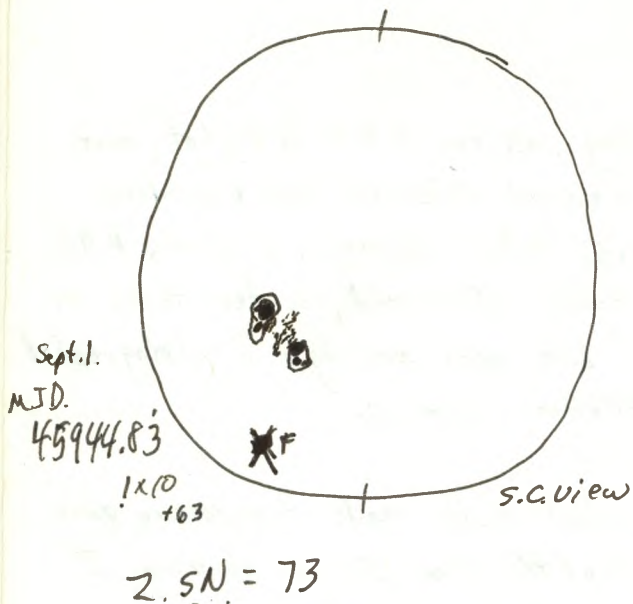
Fri.-Sat.

Aug. 31-Sept. 1, 1984

M.I.D.

45944.0

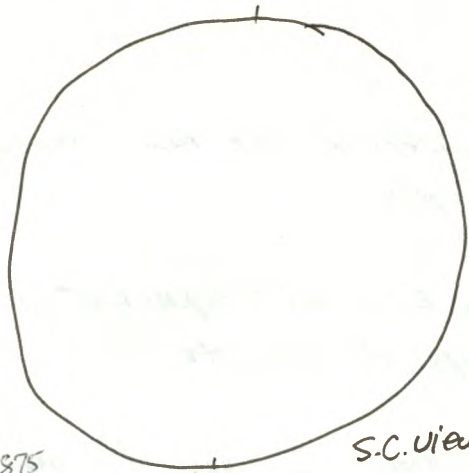
On a night of excellent transparency and fair seeing I observed the Moon, looking for Crater Beals which was difficult to see because the moon was low when I began telescope observing. I observed Mars, Jupiter, M57, M27 and photographed Milky Way areas and M57 and M27.



Fri. Night. Sept. 7-8, 1984
- very brief (1x80
binocular observation
of the moon.

- Sat. Sept. 1, 1984 At about 4:00^{A.M.} E.D.T. I observed the sun seeing one
M.J.D. 45944.83 very large group of sunspots
- Mon. Sept. 3, 1984 Between about 4:30 p.m. E.D.T. and 5:00 p.m. E.D.T., I observed
M.J.D. 45946.85 the sun seeing four groups of sunspots.
- ~~Tue - Wed~~
~~Wed - Thu~~ Sept. 4-5, 1984 After midnight from indoors I observed a good
M.J.D. 45948.16 auroral display featuring arcs and spikes and
some flaring.
- ~~Wed - Thu~~ Sept. 5-6, 1984
Wed - Thu Sept. 5-6, 1984 In the evening I observed Saturn, Mars,
M.J.D. 45949.0 Jupiter, Mizar, and the bright gibbous moon. On a
night of excellent transparency I observed and
photographed the moon with the C-8, trying to
see and photograph Crater Beals. I probably
succeeded. Some Aurora was evident.
- Thu. Sept. 6, 1984 At about 3:30 p.m. E.D.T., I observed sunspots
M.J.D. 45949.8 seeing two groups of them.
- On a night of good transparency I observed Mars,
Jupiter, and the moon trying to observe Crater Beals,
whose area, at least, I observed. With
the C-8 I also observed the area of
M103 in Cassiopeia and the area of W Cassiopeiae,
a variable star near U Cassiopeiae.
- Fri. Sept. 7, 1984 At about 3:00 p.m. E.D.T. I observed ~~and photographed~~ ^{sunspots, seeing}
M.J.D. 45950.8 one medium-sized group near the limb.
- Sat. Sept. 8, 1984 At about 3:30 p.m. E.D.T. I observed sunspots, seeing
M.J.D. 45951.8 one small group.
- Sun. Sept. 9, 1984 At about 2:00 p.m. E.D.T. I observed sunspots, seeing
M.J.D. 45952.75 one small group with some of the spots quite small

Sept. 11
M.J.D. 45954.875

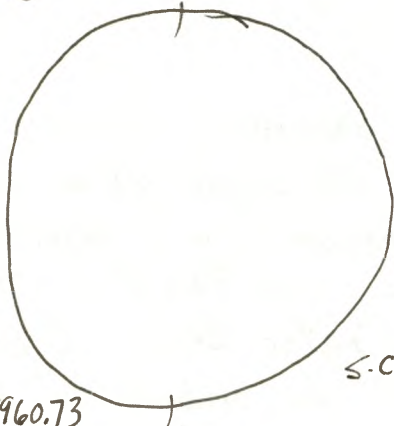


S.C. view (!)

Z.S.N. = 0

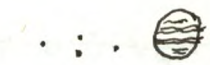
David and I
observed the moon
with the C-8 and
various eyepieces.

Sept. 17
M.J.D. 45960.73



S.C. view (!)

Z.S.N. = 0

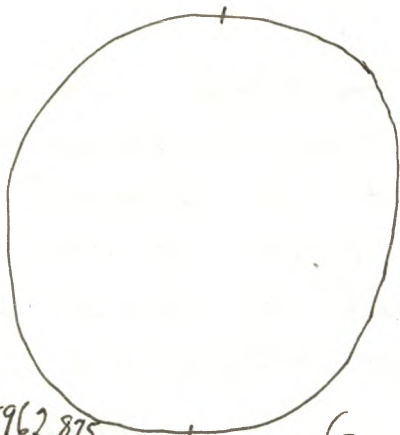


Jupiter and moons

M.J.D. 45955.0

S.C. View

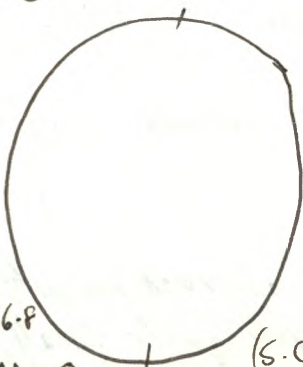
Sept. 19.
M.J.D. 45962.875



(S.C. view) (!)

Z.S.N. = 0

Sept. 23.
M.J.D. 45966.8



(S.C. view) (!) Conditions were cloudy.

Z.S.N. = 0

Mon.-Tue.

Sept. 10-11, 1984
M.J.D. 45954.16

- Special guest at the observatory:
David H. Levy again. Thanks
for your hospitality at this
special and inspiring observatory!

Tue.
M.J.D. Sept. 11, 1984
45954.875

At about 5:00 p.m. E.D.T., I observed the sun, seeing
no sunspots at all

Tue.-Wed.
M.J.D. Sept. 11-12, 1984
45955.0

At about 9:30 p.m. E.D.T. I observed Jupiter with the
C-8, seeing all four Galilean moons on the one side,
and M22 and M57.

Mon.
M.J.D. Sept. 17, 1984
45960.73

At about 1:30 p.m. E.D.T., I observed the solar disk
seeing no sunspots at all

Mon.-Tue.
M.J.D. Sept. 17-18, 1984
45961.0

On a night of very good transparency and good seeing
I observed Jupiter, Mars, M57, M13, M11, M10,
M12, NGC 6802 (near Collinger 399, the Coathanger), M31,
M32, M110, M27, and the Veil Nebula, which was superb.

Tue.-Wed. Sept. 18-19, 1984
M.J.D. 45962.0

On a night of very good transparency and fairly good
seeing, I observed naked-eye.

Wed.
M.J.D. Sept. 19, 1984
45962.875

At about 5:00 p.m. E.D.T., I observed the sun seeing
no sunspots at all

Wed.-Thu.
M.J.D. Sept. 19-20, 1984
45963.0

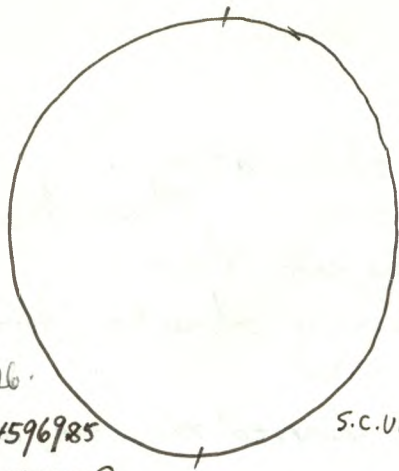
On a night of good transparency and fairly good seeing,
I observed naked-eye

Sat.-Sun.
M.J.D. Sept. 22-23, 1984
45966.0

on a clear night I observed an Aurora seeing
a double arc up to about 40° in the north.

Sun.
M.J.D. Sept. 23, 1984
45966.8

At shortly after 3:00 p.m. E.D.T., I observed the sun
in spite of numerous clouds and did not see any spots.



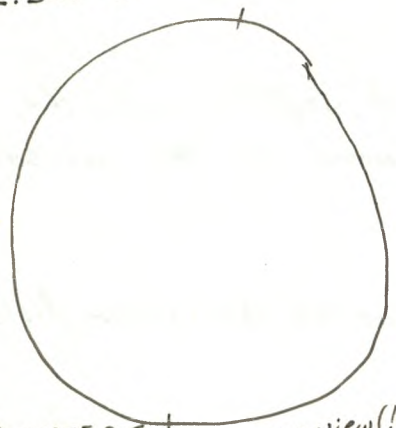
Sept 26.
M.J.D. 4596985
Z.S.N. = 0

s.c. view (!)



M.J.D. 459737
Z.S.N. = 11

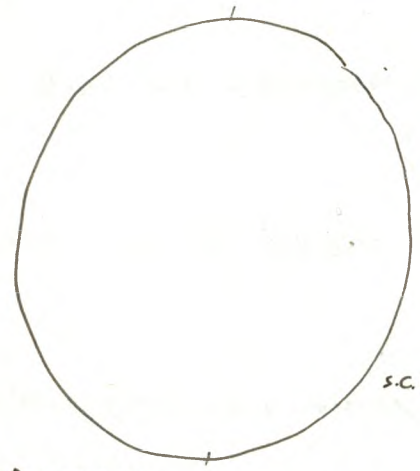
s.c. view



M.J.D. 45975875

s.c. view (!)

Z.S.N. = 0 - Considerable granulation seen.



s.c. view (!)

M.J.D. 4597883

- some granulation seen

Z.S.N. = 0

Veaus observed:
Oct 5
Oct 6
Oct 10
Oct 12 - Kingston

Wed. Sept. 26, 1984 Between 4:00 p.m. and 4:30 p.m. E.D.T., I observed the sun, seeing
M.J.D. 45969.85 no sunspots.

Sun. Sept. 30, 1984 About 1:00 p.m. E.D.T., I observed the sun seeing one
M.J.D. 45973.7 very small spot and an area of granulation in which some
granules seemed to be dark but did not remain so
or remain dark enough to be considered sunspots.

Sun-Mon. Sept. 30-Oct. 1, 1984 With the C-14, I observed Jupiter, the moon, M57, M13,
M.J.D. 45974.0 M31, and I photographed lunar craters in the
hope of being able to photograph Crater Beals on
the date of one of the very best positive longitudinal
librations of the year.

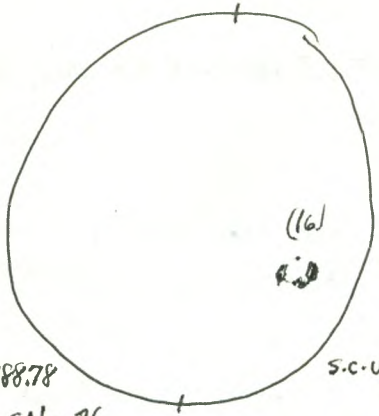
Tue. Oct. 2, 1984 At about 5:00 p.m. E.D.T. I observed the sun seeing no
M.J.D. 45975.875 sunspots but considerable granulation.

Tue.-Wed. Oct. 2-3, 1984 shortly after 8:00 p.m. E.D.T., I observed with the
M.J.D. 45976.0 Astroscan, seeing Jupiter with the 4 Galilean Moons all
on one side, Mars, M13, M31, Albireo, Mizar, and
the moon. There was an Auroral glow in the north.

Wed.-Thu. Oct. 3-4, 1984 Shortly after 8:00 p.m. E.D.T., I observed using 11x80 binoculars
M.J.D. 45977.0 seeing M8, Jupiter, and the moon where the terminator
was just crossing the Crater Copernicus.

Fri. Oct. 5, 1984 After 4:00 p.m. E.D.T., I observed the sun seeing no sunspots but
M.J.D. 45978.83 some granulation.

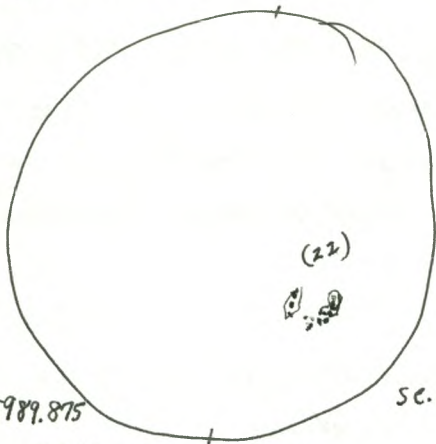
Fri. Oct. 12, 1984 At about 6:17 a.m. E.D.T. I observed the Space Shuttle
M.J.D. 45985.42 Challenger passing through the northern sky for about 30 seconds.
It appeared below Cassiopeia at about altitude 30° - 35°
in the north-north-west and moved to the north-north-east
before becoming faint and disappearing. It was the Space Shuttle



M.J.D. 45988.78

Z.S.N. = 26

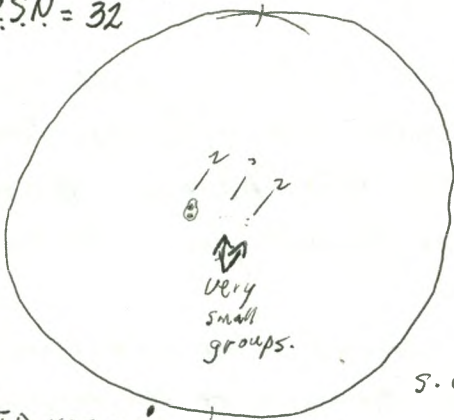
s.c. view



M.J.D. 45989.875

Z.S.N. = 32

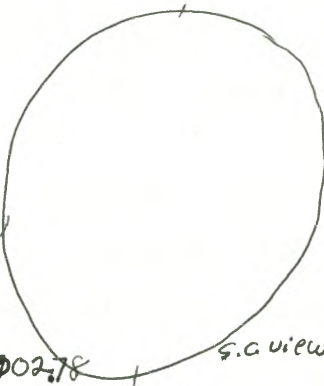
s.c. view.



M.J.D. 45993.6

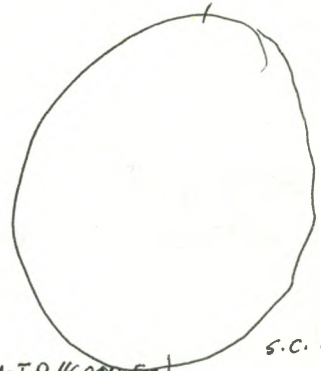
Z.S.N. = 37

s.c. view



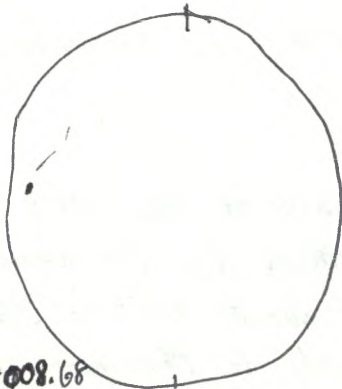
M.J.D. 46002.78
Z.S.N. = 0

s.c. view(!)



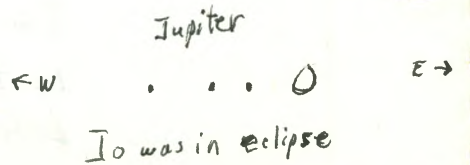
M.J.D. 46004.82
Z.S.N. = 0

s.c. view(!)



M.J.D. 46008.68
Z.S.N. = 11

s.c. view



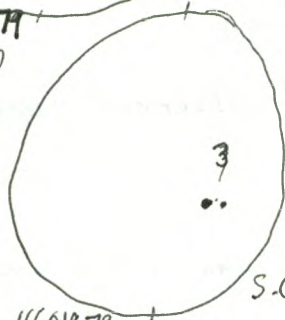
carrying the first Canadian astronaut, Mark Garneau, and the shuttle landed safely the following day.

- Sat.-Sun. Oct. 13-14, 1984 At about 8:00 p.m. E.D.T., I observed Mars and
M.J.D. 45987.0 Jupiter with the Astroscan.
- Sun.-Mon. Oct. 14-15, 1984 At about 7:00 p.m. E.D.T., I observed Jupiter
M.J.D. 45988.0 in spite of clouds.
- Mon. Oct. 15, 1984 About 2:45 p.m. E.O.T., I observed the sun seeing one
M.J.D. 45988.78 group of sunspots
- Mon.-Tue. Oct. 15-16, 1984 At night I observed with the C-14 seeing Mars,
M.J.D. 45989.0 Jupiter, the eclipse reappearance of Io (or very close to it),
M13, M57, M27, NGC
- Tue. Oct. 16, 1984 At about 5:00 p.m. E.O.T. I observed the
M.J.D. 45989.875 sun seeing a large group.
- Sat. Oct. 20, 1984 At about 12:30 p.m. E.O.T. I observed the sun
M.J.D. 45989.6 seeing one easily distinguished group and two
groups which were difficult to distinguish.
- Mon. Oct. 29, 1984 At about 1:40 p.m. E.S.T., I observed the sun
M.J.D. 46002.78 seeing no spots.
- Wed. Oct. 31, 1984 At about 2:40 p.m. E.S.T., I observed the
M.J.D. 46004.82 sun seeing no spots but considerable granulation.
- Sun. Nov. 4, 1984 At about 11:40 a.m. E.S.T. I observed the sun
M.J.D. 46008.68 seeing one spot. Clouds prevented a careful
observation.
- Wed.-Thu. Nov. 7-8, 1984 In spite of a bright moon, I observed Mars and Jupiter
M.J.D. 46012.0 with the Astroscan.



M.I.D. 46017-79

Z.S.N. = 0



M.I.D. 46018-79

Z.S.N. = 13

David Levy discovered comet
on night of Nov. 13-14 at about
8:00^{pm} Mountain Time.

Comet Levy - Rudenko (1984C)

- phone call from Terence Dickinson
at about 10:03 pm. E.S.T. on
Nov. 14.

"Coordinates of comet (1984C)

R.A. $18^h 48^m$

Dec. $10^\circ 10'$

- moving north



- magnitude about 7.

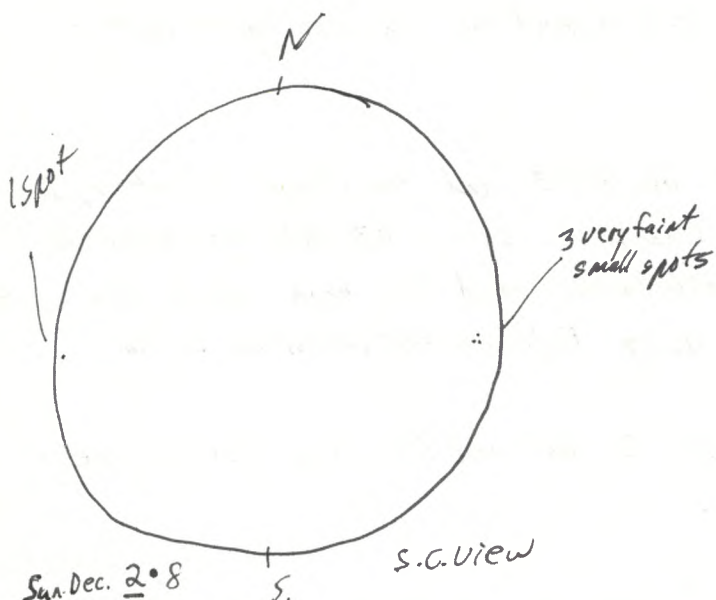
- phoned to congratulate David on Thu. Nov 15,
and left a recorded message since he
was up on Kitt Peak.

- David phoned from Kitt Peak on
Sunday Nov. 18. and gave the position of
the comet as R.A.: $18^h 50^m$

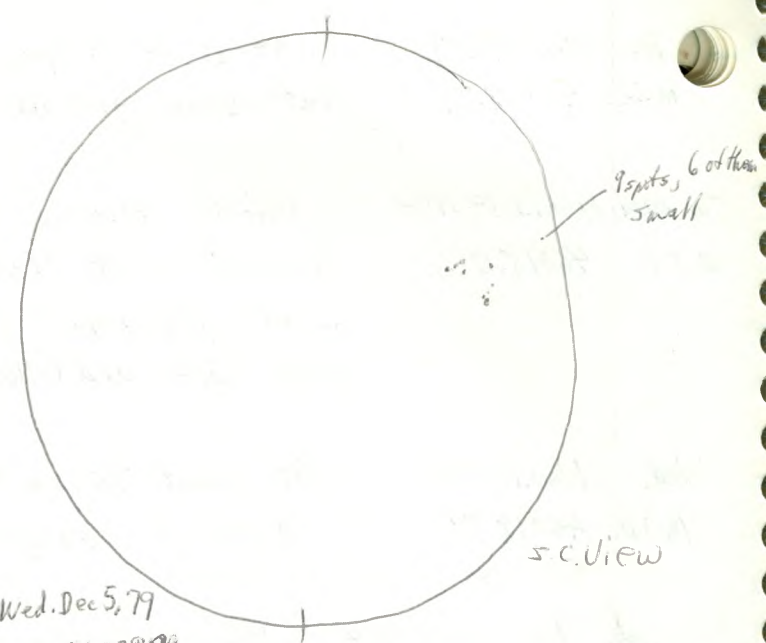
Dec.: 12°

and perhaps at about 10^m magnitude, and
moving north $\frac{1}{2} - \frac{3}{4}$ per day.

- 
 Tue. Nov. 13, 1984 At about 2:00 p.m. E.S.T. I observed the sun, seeing no spots
 M.J.D. 46017.79 but some granulation.
- Tue.-Wed. Nov. 13-14, 1984 Before moonrise at about 8:30 and for a while thereafter, I
 M.J.D. 46018.0 observed with 11x80 binoculars seeing M36, M37, M38, M13.
 I also photographed constellations and the moon which was
 near Castor and Pollux using Fujichrome 400 Professional D film.
- Wed. Nov. 14, 1984 At about 2:00 p.m. E.D.T. I observed the sun seeing one
 M.J.D. 46018.79 group of sunspots.
- Fri.-Sat. Nov. 16-17, 1984 While driving from Belleville to Read, I saw some
 M.J.D. 46021.0 Aurora in the north.
- Sun.-Mon. Nov. 18-19, 1984 With 11x80 binoculars, I searched for Comet
 M.J.D. 46023.0 Levy-Rudenko but was not certain of identifying it.
- 
 Mon.-Tue. Nov. 19-20, 1984 With the C-14, I searched for Comet Levy-Rudenko
 M.J.D. 46024.0 (1984 t.) but was not sure of locating it. I also
 searched with the C-8 and with 11x80 binoculars.
- Tue.-Wed. Nov. 20-21, 1984 With the Astroscan and the C-8 I searched for
 M.J.D. 46025.0 Comet Levy-Rudenko (1984 t.). I also used 11x80
 binoculars. With the C-8, I observed M57, and
 Albiteo, and also Mars. I also photographed the
 area of Aquila
- Sat.-Sun. Nov. 24-25, 1984 I observed with the C-14, and the Astroscan, and
 M.J.D. 46029.0 11x80 binoculars hoping to observe Comet Levy-Rudenko
 very definitely, but did not definitively identify it.
 I observed M57, Jupiter, Venus, M33, and after
 midnight, I observed M42 and M43 which were
 stunningly brilliant.
- Mon.-Tue. Nov. 26-27, 1984 With Astroscan and binoculars I observed the Aquila-Hercules
 M.J.D. 46031.0



Sun. Dec. 2·8
 M.J.D. 46036.8
 Z.S.N. = 24



Wed. Dec 5, 79
 M.J.D. 46039.79
 Z.S.N. = 19

December
 was very
 cloudy.

Quadrantid maximum
 was listed as
 January 3 - 13 hours

Moonset →
 was at
 4:21 a.m. EST.
 I set the alarm
 for shortly after
 that time.

border area hoping to see Comet Levy-Rudenko. I also observed M57, M31, and several other Messier objects, and Algol at minimum or near it.

Tue.-Wed Nov. 27-28, 1984 When Tim and David Enright were here, we observed with the Astroscan, seeing Jupiter, ⁽¹⁾ Venus, Mars, and other objects)

Sun. Dec. 2, 1984 After 2:00 p.m. E.S.T. I observed the sun seeing two small sunspot groups.
M.J.D. 46036.8

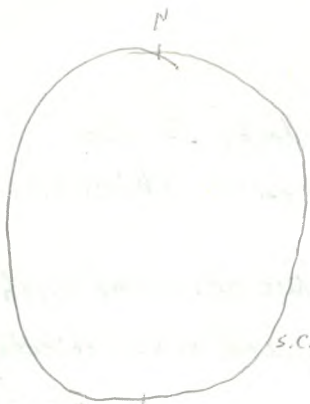
Sun.-Mon Dec. 2-3, 1984 With the Astroscan, I observed, Jupiter, Venus, Mars, and lunar craters which were remarkably clear.
M.J.D. 6037.0

Wed. Dec. 5, 1984 Before 2:00 p.m. E.S.T. I observed the sun seeing one group of spots.
M.J.D. 46039.79

Thu.-Fri. Dec. 13-14, 1984 About 9:00 p.m. E.S.T., I observed several Geminid meteors of about magnitude 2 or 3. Within a period of about one minute there were two Geminids and one bright sporadic meteor.
M.J.D. 46048.0

Sun.-Mon Dec. 30-31, 1984 While at Read I observed with 11x80 binoculars for a while when the sky was clear and before it became cloudy, hoping to see Comet Levy-Rudenko, which was near Kappa Hydrae.
M.J.D. 46065.0

Wed.-Thu Jan. 2-3, 1985 From about 4:45 a.m. E.S.T. to about 6:30 a.m. E.S.T. I observed and tried to photograph some of the Quadrantid Meteors. It was near the peak of the shower and it seemed to be an excellent shower with almost one meteor per minute, it seemed visible. Because of the cold, I came into the house several times and observed through the window. At about 6:09 a.m. E.S.T. I saw one very bright meteor (about magnitude -4.5 or 5) In all I may have seen 40 to 50 meteors. It was a good Meteor Shower.
M.J.D. 46068.4



Thu Jan. 3. 8

M.S.D. 460688

Z.S.N. = 0

	J.D.	
Jan. 1	2446066.5	46066
2		7
3		8
4		9
5		70
6		71
7		72
8		73
9		74

Thu Jan 3, 1985
M.J.D. 46068.8

At about 2:00 p.m. E.D.T. I observed the sun seeing considerable granulation but no sunspots.

Thu Jan 3, 1985
M.J.D. 46069.0

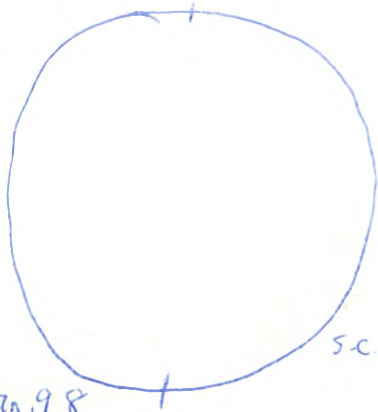
From about 5:30 p.m. E.S.T. to about 7:00 p.m. E.S.T., I observed with the Astroscan, the C-8, and 11x80 binoculars. I saw two stars near the time of their being occulted by the moon. One was before 6:00 p.m. E.D.T.; the other one was at approximately 6:25:25 p.m. E.D.T. (23:25:25 U.T.) The moon was in Taurus. I observed lunar craters, and also Mars, Venus (near quarter phase), one Quadrantid meteor and with binoculars and telescopes, I looked for Comet Levy-Rudenko but the sky was bright because of moonlight.

Fri Jan 4, 1985
M.J.D. 46069.25

I observed from about 5:40 a.m. E.S.T. to about 6:30 a.m. E.S.T. seeing Comet Levy-Rudenko with certainty for the first time at 5:55 a.m. E.S.T. It was near μ hyrae and large (about 3x the diameter of Saturn's rings and quite bright in the C-8 and very easily seen also in the Astroscan but very difficult to see in the 11x80 binoculars. The ephemeris listed it as being at magnitude 8.8, but from the C-8 it could almost be taken as brighter than that. I also observed M13 and Saturn. At about 6:55 a.m. E.S.T. I saw Mercury (almost certainly) in the south-east.

Tue.-Wed. Jan 8-9, 1984
M.J.D. 46074.0

On a very cold evening at about the time of moonrise which was at 6:30 p.m. E.S.T., I used the Astroscan to search for Comet Levy-Rudenko and to observe M42. I also observed Algal at its minimum. Some aurora was visible - as an arc in the early evening and as a glow later.



s.c. view!

Jan. 9. 8

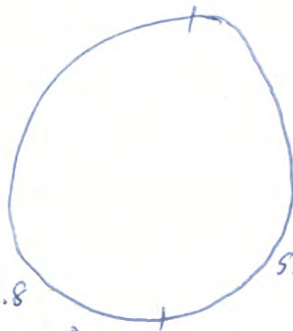
Z.S.N. = 0



s.c. view!

Jan. 11. 85

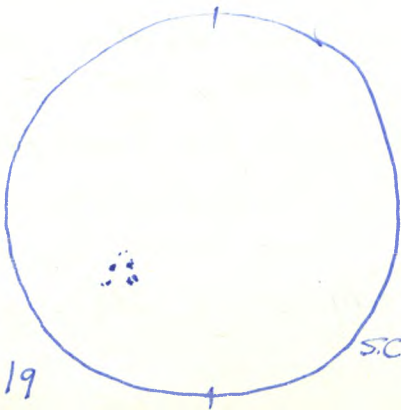
Z.S.N. = 0



s.c. view!

Jan. 12. 8

Z.S.N. = 0



s.c. view.

1 group
9 spots

Jan. 16. 8

Z.S.N. = 19

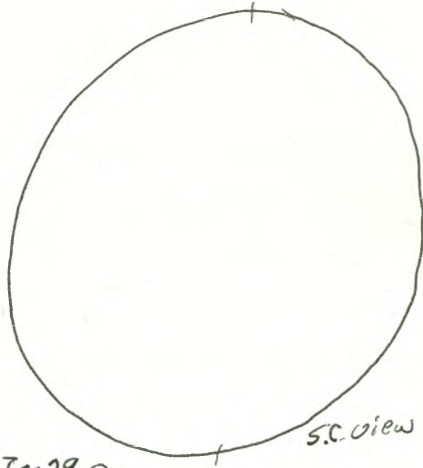
- Wed Jan 9, 1985
M.J.D. 46074.8 At about 2:30 p.m. E.S.T. I observed the sun seeing no sunspots.
- Wed-Thu Jan 9-10, 1985
M.J.D. 46075.0 In the evening I observed Mars, Venus, searched for Comet Levy-Rudenko, observed M42 and M43 (which were magnificent) and M1. Very clear!
- Thu-Fri Jan 10-11, 1985
M.J.D. 46076.0 In the evening I searched for Comet Levy-Rudenko and observed M42 and M43. I used both the C-8 and the Astroscan. Searching for the comet from the observing table was a problem because of trees in the north-west. Very clear! Seeing good!
- Fri Jan 11, 1985
M.J.D. 46076.85 In the afternoon about 3:30 p.m. E.S.T. I observed the sun seeing no sunspots.
At the same time an excellent sundog was visible to the right of the sun and in the west.
- Sat Jan 12, 1985
M.J.D. 46077.8 At about 2:00 p.m. E.S.T. I observed the sun seeing no sunspots.
- Sat-Sun Jan 12-13, 1985
M.J.D. 46078.0
(46077.916) In the evening from about 5:00 to 6:00 p.m. E.S.T., I observed using the C-14, seeing Venus (at almost exactly first-quarter phase), Mars, and some of the stars in the Pleiades. The sky then clouded over.
- Tue-Wed Jan 15-16, 1985
M.J.D. 46081.0 With 11x80 binoculars between about 9:00 p.m. and 10:00 p.m. I observed M42, M43, and the variable stars R Lep (Hind's Crimson Star, which was probably near its maximum) RX Lep, R Eri, and RX Eri. I also observed M44 and M79 (probably because it was difficult in the binoculars).
- Wed Jan 16, 1985
M.J.D. 46081.8 At about 2:00 p.m. E.S.T. I observed the sun seeing one sunspot group with 9 spots.

16 suspects

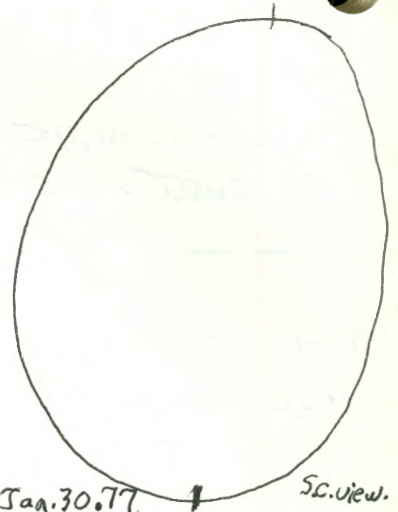


10
16
26

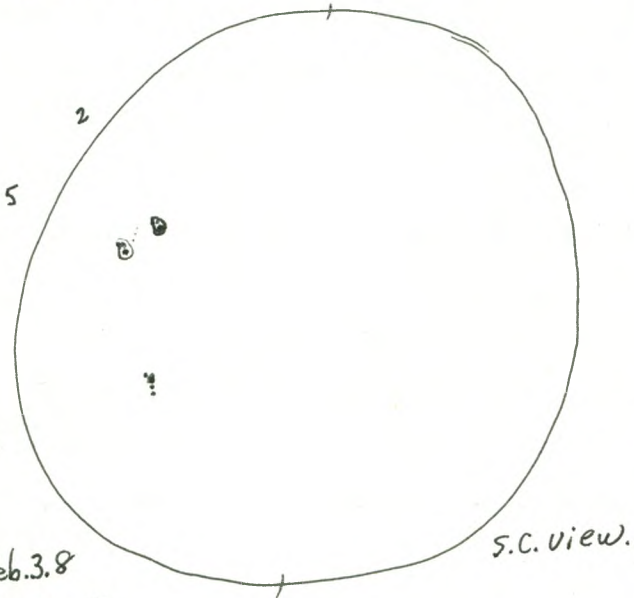
Jan. 21.8
Z.S.N. = 26



Jan. 29.8
Z.S.N. = 0

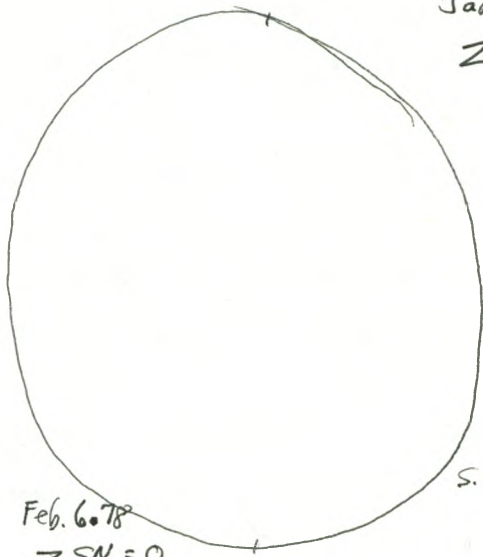


Jan. 30.77
Z.S.N. = 0

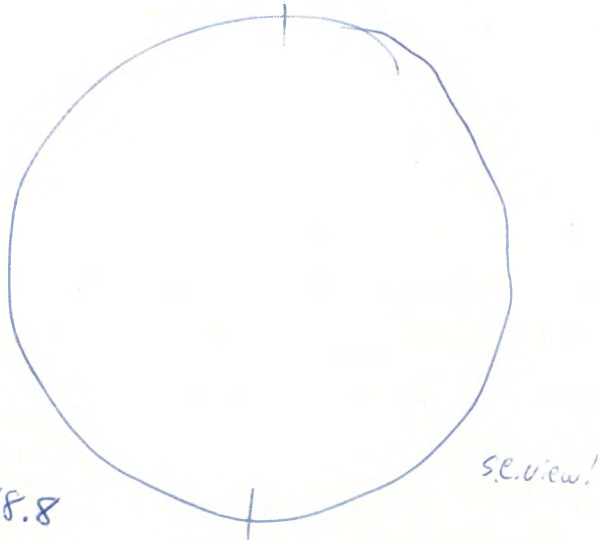


Feb. 3.8
3 groups 30
11 spots 11

Z.S.N. = 41



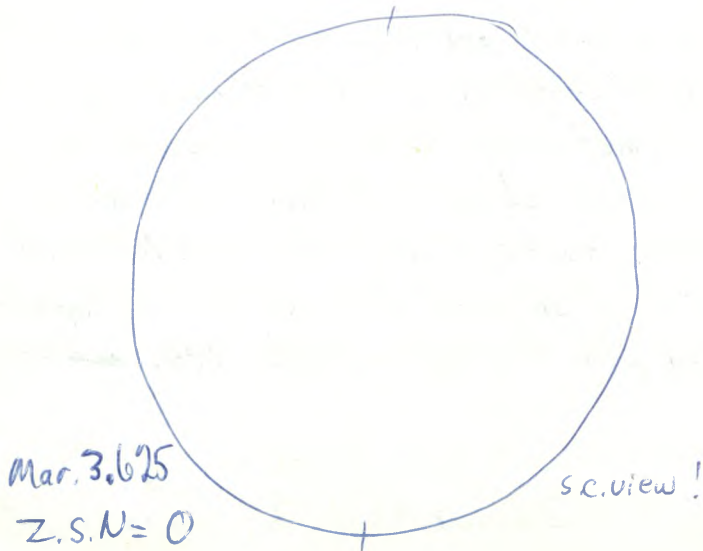
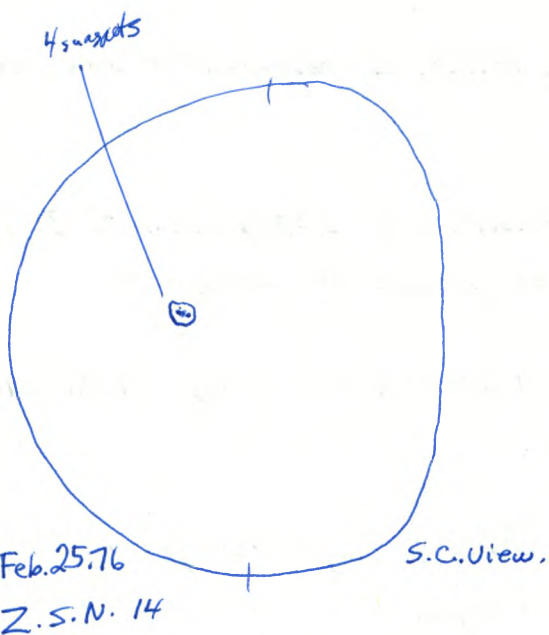
Feb. 6.78
Z.S.N. = 0



Feb. 18.8
Z.S.N. = 0

- Mon. Jan. 21, 1985. At about 2:00 p.m. E.S.T. I observed the sun seeing one fairly large sunspot group with 16 sunspots.
 M.J.D. 46086.8
- Tue. Jan. 29, 1985. About 2:30 p.m. E.S.T. I observed the sun seeing no sunspots but some noticeable granulation.
 M.J.D. 46094.8
- Tue. Jan. 29, 1985. At about 4:20 p.m. E.S.T. I observed Venus with 11x80 binoculars, while the sun was up and the sky was clear. I did not see it "naked-eye".
 M.J.D. 46094.88
- Wed. Jan. 30, 1985. At about 1:30 p.m. E.S.T. I observed the sun seeing no sunspots.
 M.J.D. 46095.77
- Sun. Feb. 3, 1985. Between 2:00 p.m. E.S.T. and 2:30 p.m. E.S.T. I observed the sun seeing three groups of sunspots.
 M.J.D. 46099.8
- Wed. Feb. 6, 1985. Between 1:30 p.m. E.S.T. and 2:00 p.m. E.S.T. I observed the sun seeing no sunspots.
 M.J.D. 46102.78
- Thurs. Feb. 7-8, 1985. After having observed Venus in bright twilight at 5:11 p.m. E.S.T., I observed at about 7:00 p.m. E.S.T., searching for Comet Levy-Rudenko near β Ursae Minoris, and observing M42 and M43. Conditions were very good for a short while but soon deteriorated because of haze and clouds.
 M.J.D. 46104.0
- Sun.-Mon. Feb. 10-11, 1985. Between about 8:00 p.m. E.S.T. and 9:30 p.m. E.S.T. I observed periodically using the 8" Celestron with the 32 mm. König ocular searching for Comet Levy-Rudenko in Ursa Minor and observing some other objects in spite of some haze. With binoculars (7x35) I also observed M33 and M31. With the C-8, I observed M42, M43, the Trapezium, the cluster associated with the Rosette Nebula, M41, ~~M44~~, and M1.
 M.J.D. 46107.0
- Mon. Feb. 18, 1985. Between 2:00 p.m. and 2:30 p.m. E.S.T. I observed the sun but saw no sunspots.
 M.J.D. 46114.8

Comet Levy-Rudekto
 C-8 and 32^{mm} 2" E. } best
 32^{mm} PI. } probably
 36^{mm} PI.
 19^{mm} W.A.
 17^{mm} PI.



On Feb. 26 I was talking to David Levy who was in Montreal and was scheduled to go to New Orleans the following day and thence home. The night before he had been unable to see "his" comet using a 4" telescope from outside Montreal. Similarly, the previous week he had not succeeded in seeing it.

Tue-Wed

Feb. 19-20, 1985

M.J.D. 46116.0

On a night of good transparency and fairly good seeing, I observed 11x80 binoculars and the C-8 telescope. With the binoculars I observed R Lep., RX Lep., R Eri, RX Eri, M33, M31, M42, M43, Venus (seeing a phase easily in binoculars), the cluster in the Rosette Nebula, M41, Alcor and Mizar. With the C-8, I observed Comet Levy-Rudenko in Ursa Major, the Trapezium (seeing 5 stars), M32, M41, and the cluster in the Rosette Nebula. Comet Levy-Rudenko seemed quite faint and diffuse and I would estimate it as a magnitude or two fainter than the 9.6 magnitude at which it was listed (possibly). Zodiacal light was quite evident.

Mon. Feb. 25, 1985

M.J.D. 46121.76

Between 1:00 p.m. and 1:30 p.m. E.S.T. I observed the sun seeing one group of sunspots.

Wed. Feb. 27, 1985

M.J.D. 46123.82

Between 2:30 p.m. E.S.T. and 3:00 E.S.T. I observed the sun seeing one sunspot. By times I thought it could be distinguished as two but there was not a lasting certainty of it throughout the observing session. Later at about 4:47 p.m. E.S.T. I observed Venus with 11x80 binoculars. Venus was very bright but was not seen naked-eye; the sky was very bright with the sun well up.

Wed-Thu. Feb. 27-28, 1985

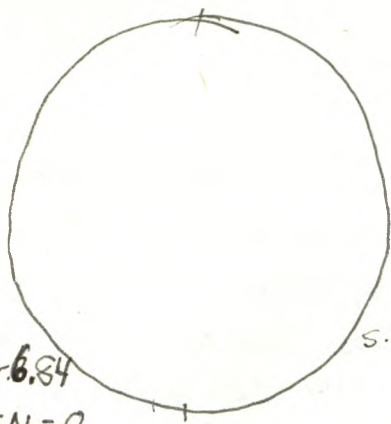
M.J.D. 46124.0

Between about 10:00 p.m. E.S.T. and 11:00 p.m. E.S.T. while driving from Kingston I observed a good Aurora. Then periodically until the moon set at 2:00 a.m. E.S.T. I observed the Aurora and even afterwards and photographed it. It was one of the best in ~~days~~ white. There was considerable flaming and a bit of colour - some yellow.

Sun. Mar. 3, 1985

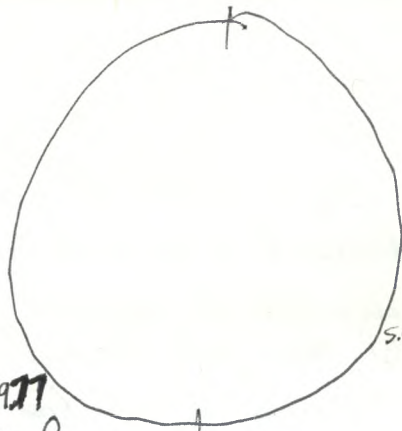
M.J.D. 46127.625

At about 10:00 a.m. E.S.T. I observed the sun seeing no sunspots.



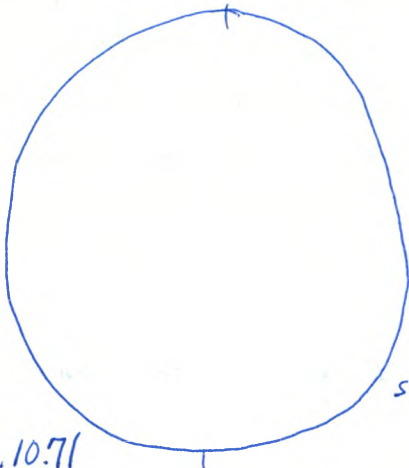
Mar. 6.64
Z.S.N. = 0.

s.c. view.



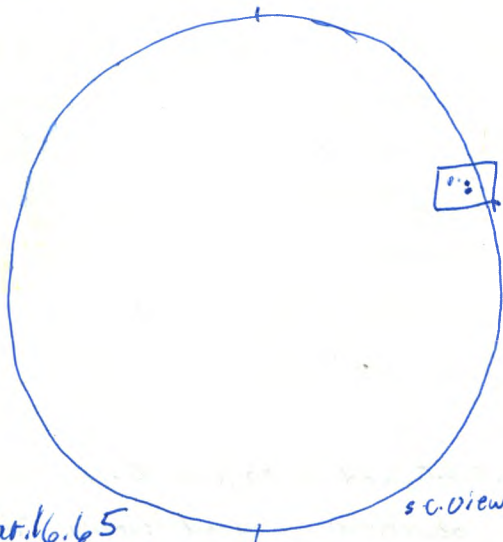
Mar. 9.77
Z.S.N. = 0.

s.c. view.



Mar. 10.71
Z.S.N. = 0

s.c. view.



Mar. 16.65
Z.S.N. = 0

s.c. view.

Area of
white
plages

naked-eye
observations
in Read
Mar. 10-11 and
Mar. 14-15.

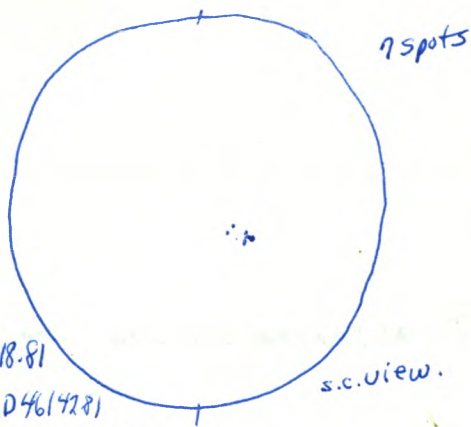
Venus in the



12^{mm} ocular in the C-14.

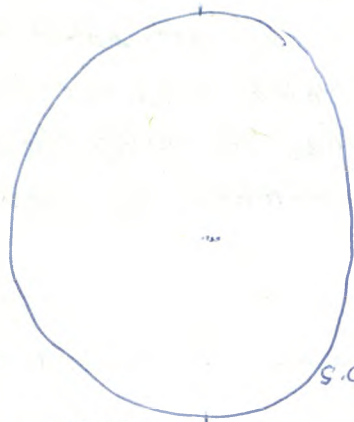
I possibly saw
some Gegenschein
in northern area of
constellation Leo and
in Leo Minor.

- Wed. ~~Mar. 6,~~ 1985
M.J.D. 46130.84 Between 3:00 p.m. E.S.T. and 3:30 p.m. E.S.T. I observed the sun seeing no sunspots.
- Sat. Mar 9, 1985
M.J.D. 46133.77 At about 1:30 p.m. E.S.T. I observed the sun seeing no sunspots
- Sat.-Sun Mar. 9-10, 1985
M.J.D. 46134.0 Between about 7:15 p.m. E.S.T. and 8:45 p.m. I observed with 11x80 binoculars and attempted to photograph the Zodiacal light which was excellent at times appearing brighter than the Milky Way in Auriga. The Zodiacal light stretched up past the Pleiades.
- Sun. Mar. 10, 1985
M.J.D. 46134.71 Between 12:00 noon E.S.T. and 12:30 p.m. E.S.T. I observed the sun seeing no sunspots.
- Fri.-Sat. Mar 15-16, 1985
M.J.D. 46140.0 For several hours I observed and photographed on a night of remarkably good transparency. The Zodiacal light was very bright - brighter than the Milky Way and higher than the Pleiades, and lasted over two hours. I tried to photograph it. I also observed Venus, Mars, The Trapezium (seeing 6 stars easily), the Rosette Nebula which could be seen, and it seemed possible to see some of the nebulosity associated with the ~~Rosette~~ ^{horseshoe} Nebula, M36, M51. In the early evening Mercury was also seen low in the west-north-west below Venus.
- Sat. Mar. 16, 1985
M.J.D. 46140.65 At about 10:45 a.m. E.S.T. I observed the sun seeing no sunspots but an area of about 5 white plages in "spot" formation.
- Sun.-Mon. Mar. 17-18, 1985
M.J.D. 46141.0 In the evening and at various times during the night I observed, once with 11x80 binoculars, but mainly naked-eye. I observed Saturn in the early morning near the Libra-Scorpius border and Jupiter in Capricornus.



Mar. 18. 81
M.I.D 46 (4781)
Z.S.N. = 17

s.c. view.



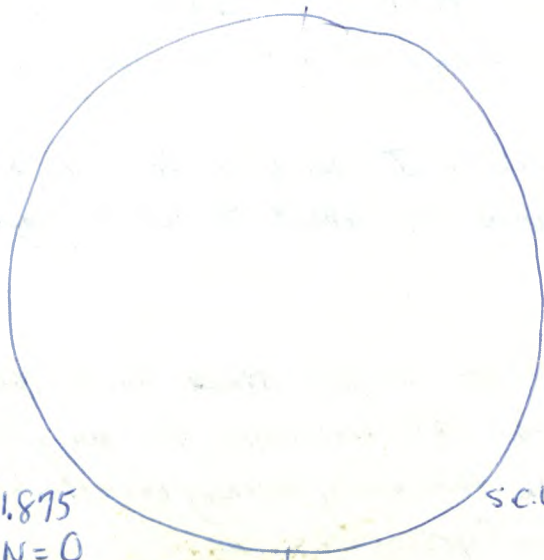
Mar. 19. 79
Z.S.N. = 14

s.c. view



Mar. 20. 86
Z.S.N. = 0

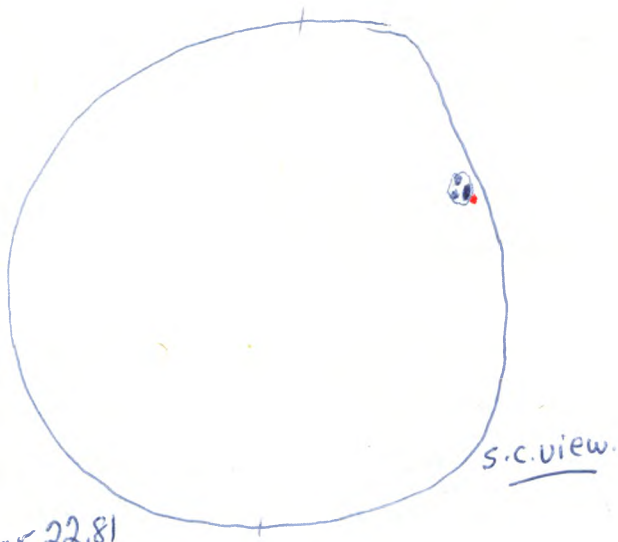
s.c. view



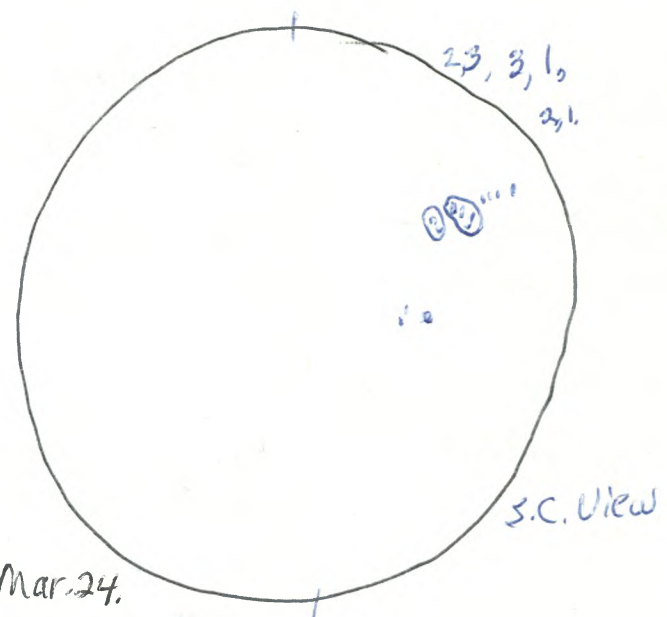
Mar. 21. 875
Z.S.N. = 0

s.c. view!

- Mon. Mar. 18, 1985
M.J.D. 46142.81 At about 2:30 p.m. E.S.T. I observed the sun seeing one group of 7 spots.
- Mon.-Tue. Mar. 18-19, 1985
M.J.D. 46143.0 On a night of excellent transparency and mediocre ^(to poor) seeing, I observed with 11x80 binoculars and the C-8 telescope observing M41, M42 and M43, M51, M67, M65, M66, NGC 3593, and NGC 3628 (the last 4 near ~~the~~ Leonis) and also M105, M95, M96, NGC 3384, NGC 3389, NGC 3412 and NGC 3377 (probably) the last 7 east of Regulus. The Zodiacal Light was excellent and I attempted to photograph it. I also observed the Pleiades and hand X Persei.
- Tue. Mar. 19, 1985
M.J.D. 46143.79 Shortly before 2:00 p.m. E.S.T. I observed the sun seeing 4 spots in one group.
- Wed. Mar. 20, 1985
M.J.D. 46144.86 At about 3:40 p.m. E.S.T. I observed the sun seeing no sunspots but a large area of white plages.
- Wed.-Thu. Mar. 20-21, 1985
M.J.D. 46145.0 On a night of excellent transparency and mediocre seeing I photographed the Zodiacal Light and observed with the 11x80 binoculars. The Zodiacal Light was very good, up to the Pleiades or almost that far, and brighter than the Milky Way. With 11x80 binoculars I observed M41, M42, M43, the Area in Auriga near S Aurigae - M36, M37, M38, NGC 1907, ~~NGC 1931~~ the stars near S Aurigae though the star itself was not visible or only peripheral, AR Aurigae, W Orionis, RX Leporis, and other stars in the constellation Leo, and in Cancer near the current position of Comet Levy-Rudenko.
- Thu. Mar. 21, 1985
M.J.D. 46145.875 At about 4:00 p.m. E.S.T. I observed the sun seeing no spots



Mar. 22.81
Z.S.N = 13



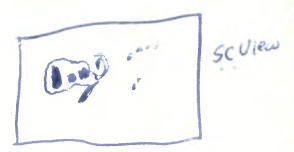
Mar. 24.
Z.S.N. = 72



Mar. 25.92
Z.S.N = 36



Mar. 26.8
Z.S.N = 52



Mar. 26.9
Z.S.N = 50

Tue-Fri.

Mar. 21-22, 1985

M.J.D. 46146.0

On a night of very good transparency and adequate seeing I photographed Zodiacal Light which was extremely good, being considerably brighter than the Milky Way. It extended up well past the Pleiades. I also observed with the C-8 and 11x80 binoculars seeing M 42, M 43, M 44, M 67, M 36, 37, 38, the area around S Aurigae, M 13, W Orions, RX Orions, the area near R Leporis. I tried to find Comet Levy-Rudenko, not too far from Castor and Pollux but did not succeed with certainty. I also explored the area east of Tau Virginis in the hope of eventually being able to see Pluto. At about 11:00 p.m. E.S.T. there was a bright meteor green in colour and about -4^{th} magnitude in the constellations Puppis and Canis Major.

Fri. Mar. 22, 1985.

M.J.D. 46146.81

At about 2:30 p.m. E.S.T. I observed the sun seeing one group with 3 spots.

Sun. Mar. 24, 1985

M.J.D. 46148.81

At about 2:30 p.m. E.S.T. I observed the sun seeing 6 groups.

Special guests: *Bob McGlashan*

Mon. Mar. 25, 1985.

M.J.D. 46149.92

Between 5:00 p.m. E.S.T. and 5:30 p.m. E.S.T. I observed the sun seeing 3 sunspot groups.

Tue. Mar. 26, 1985.

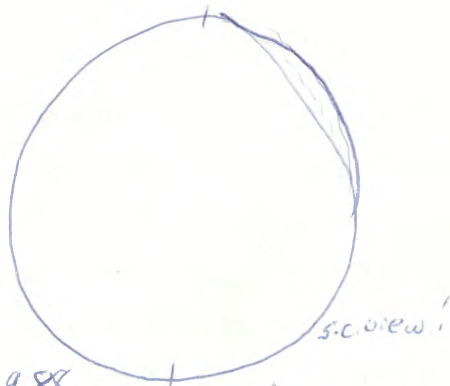
M.J.D. 46150.8

Just after 2:00 p.m. E.S.T., I observed the sun seeing 4 groups of sunspots

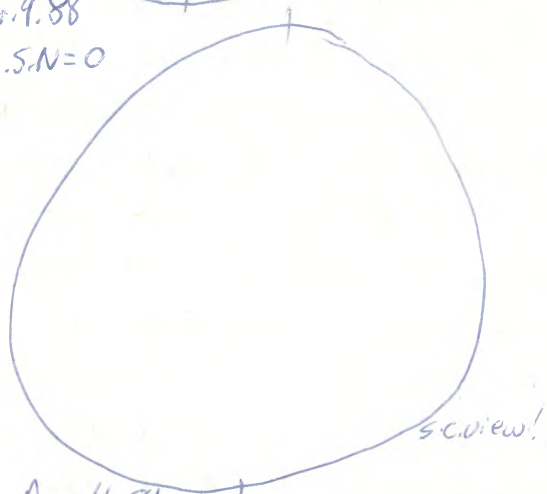
Tue. Mar. 26, 1985.

M.J.D. 46150.9

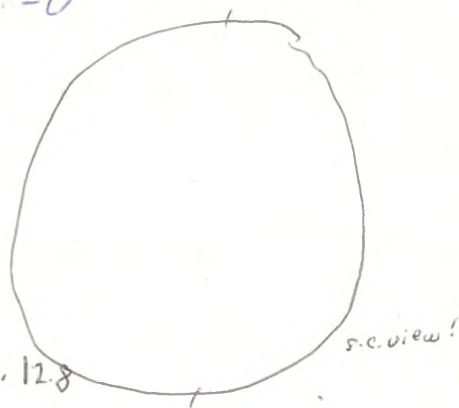
Later the same afternoon between 4:30 and 5:00 p.m. I observed the sun. It appeared that one small group had disappeared, and one other ~~one~~ group had formed below the main groups and one had disappeared above the main groups



Apr. 9. 88
Z.S.N. = 0



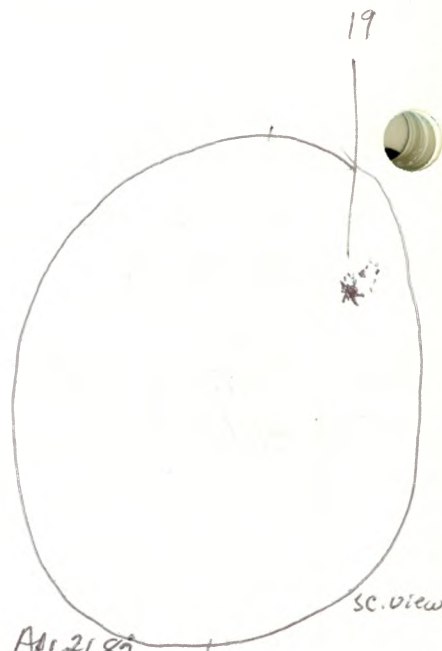
Apr. 11. 81
Z.S.N. = 0



Apr. 12. 8
Z.S.N. = 0



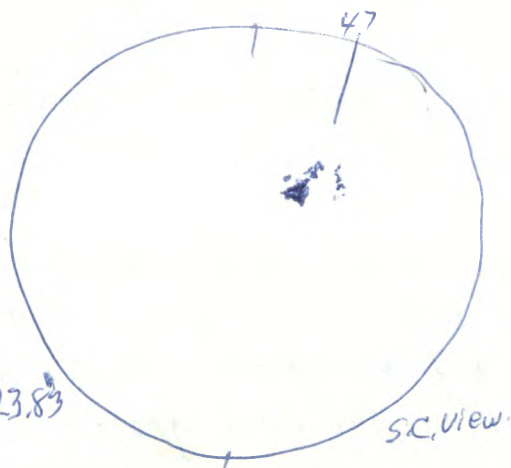
Apr. 17. 95
Z.S.N. = 0



Apr. 21. 83
Z.S.N. = 29

$\frac{10}{+19}$

 29



Apr. 23. 83
 $\frac{2 \times 10}{47}$

 67
Z.S.N. = 67

Tue. Wed. Mar. 26-27, 1985
M.J.D. 46151.0

With 11x80 binoculars I observed M36, M37, M38, M44, M41, the area of M51, the area of Tau Virginis and the crescent moon.

Tue. Apr. 9, 1985
M.J.D. 46164.88

At about 4:15 p.m. E.S.T. I observed the sun seeing no sunspots but considerable granulation.

Tue. Wed. Apr. 9-10, 1985
M.J.D. 46165.0

On a night of fair to good transparency and fair seeing I observed with the naked eye and 11x80 binoculars seeing M42, M41, M13, and even M51 in binoculars.

Thu. Apr. 11, 1985
M.J.D. 46166.81

After 2:30 p.m. E.S.T. I observed the sun seeing no sunspots.

Thu.-Fri. Apr. 11-12, 1985
M.J.D. 46167.

At about 2:00 a.m. E.S.T. I observed with 11x80 binoculars seeing the asteroid Vesta very easily in Virgo near the star Tau Virginis.

Fri. Apr. 12, 1985
M.J.D. 46167.8

About 2:15 p.m. E.S.T. I observed the sun seeing no sunspots.

Wed. Apr. 17, 1985
M.J.D. 46172.95

At about 6:00 p.m. E.S.T. I observed the sun seeing no spots.

Sun. Apr. 21, 1985
M.J.D. 46176.83

At about 7:00 p.m. E.S.T. I observed seeing one large group which had come into view.

Mon.-Tue. Apr. 22-23, 1985
M.J.D. 46178

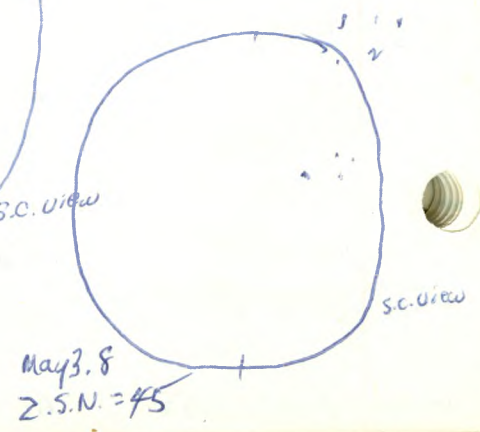
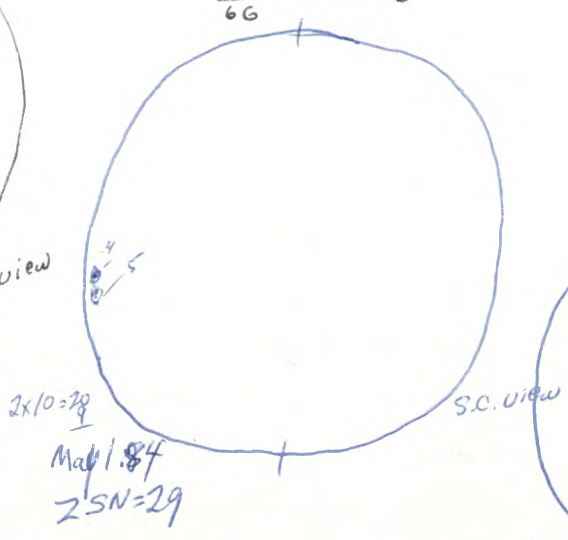
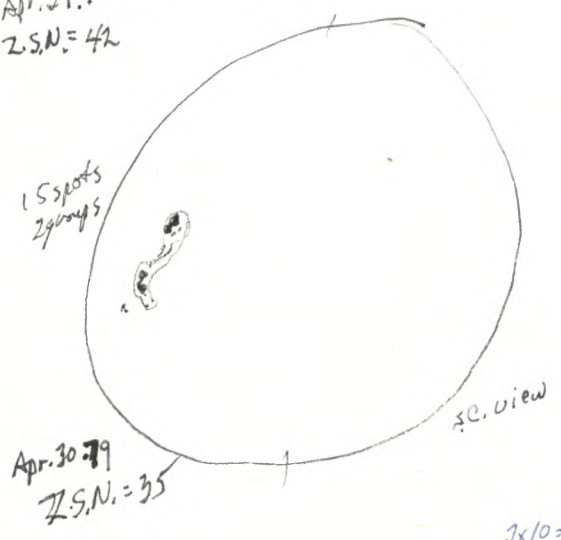
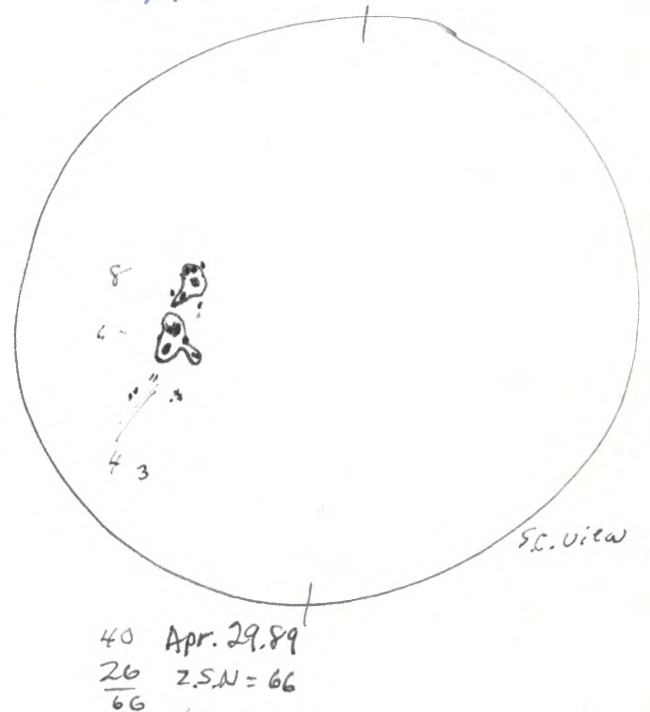
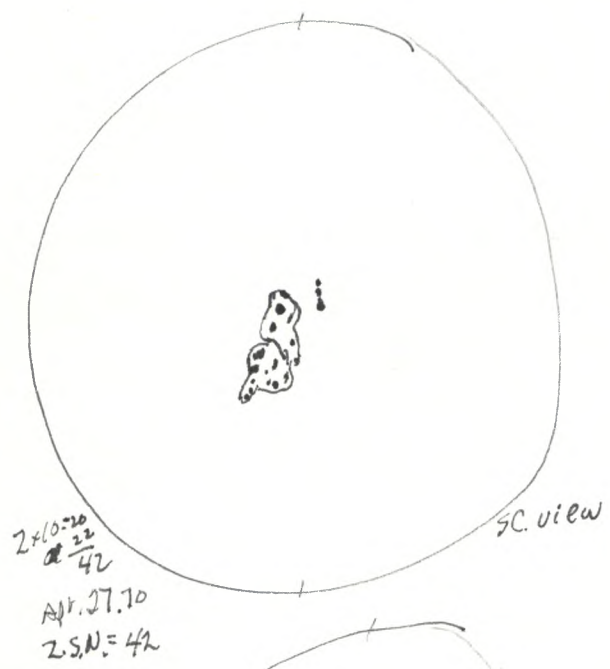
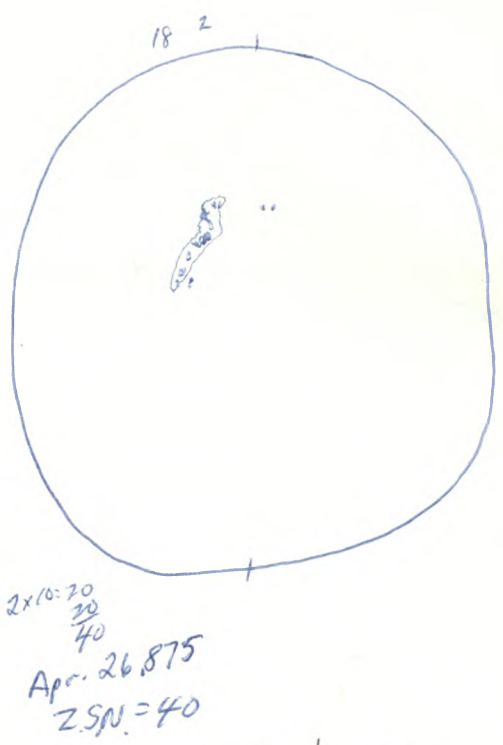
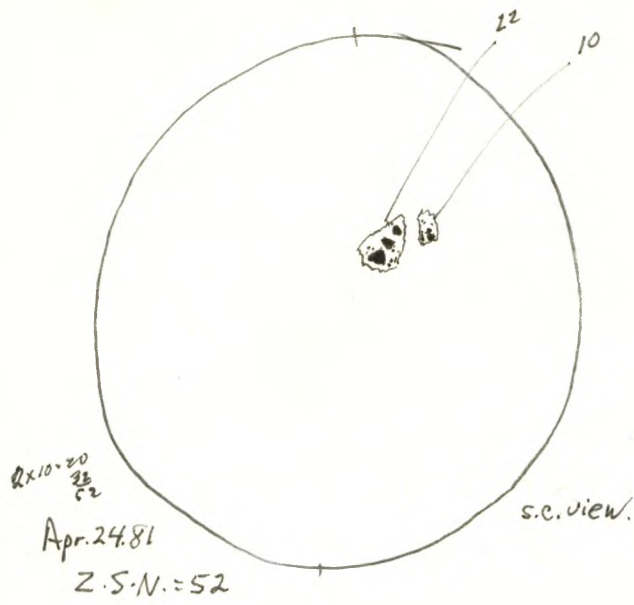
On a night with considerable haze, only fair seeing, and rather poor transparency, I observed with the Astroscan, seeing γ Leonis, γ Virginis, M65, M66, M13, Saturn, Alcor and Mizar, M57, and Ekyrae.

Tue. Apr. 23, 1985
M.J.D. 46178.83

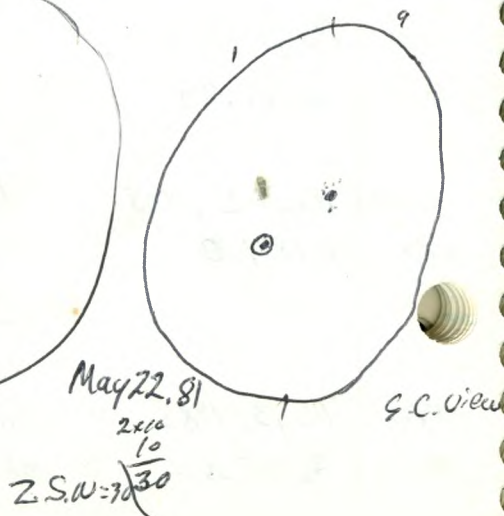
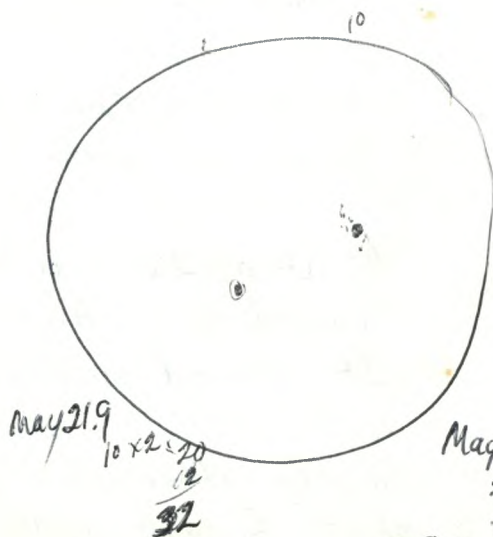
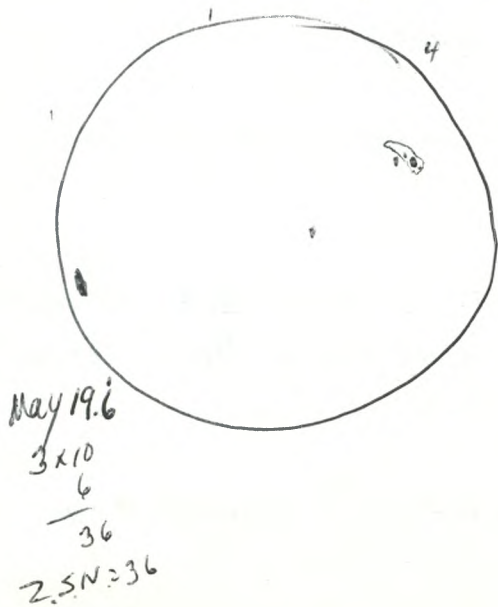
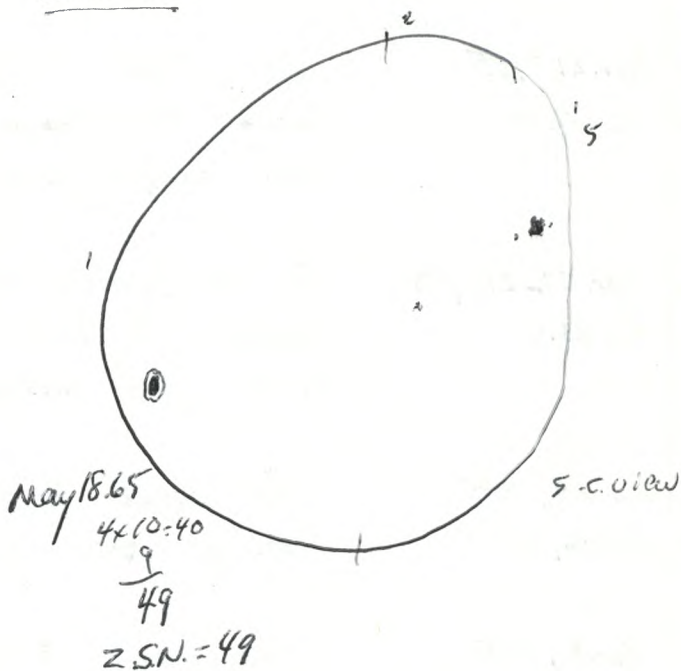
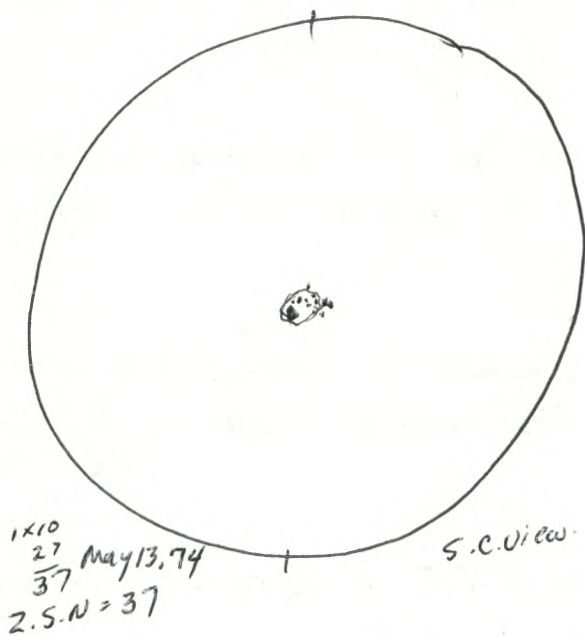
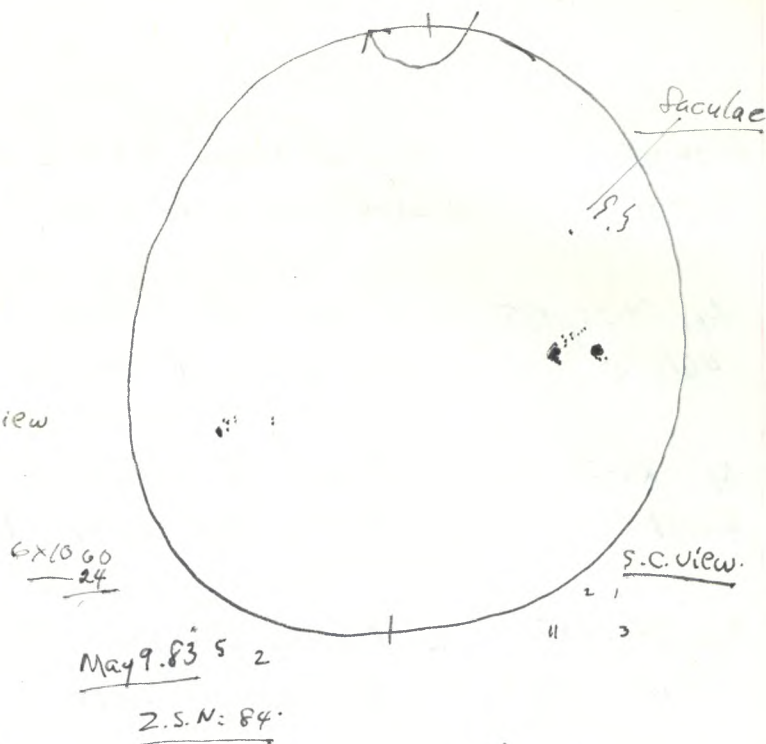
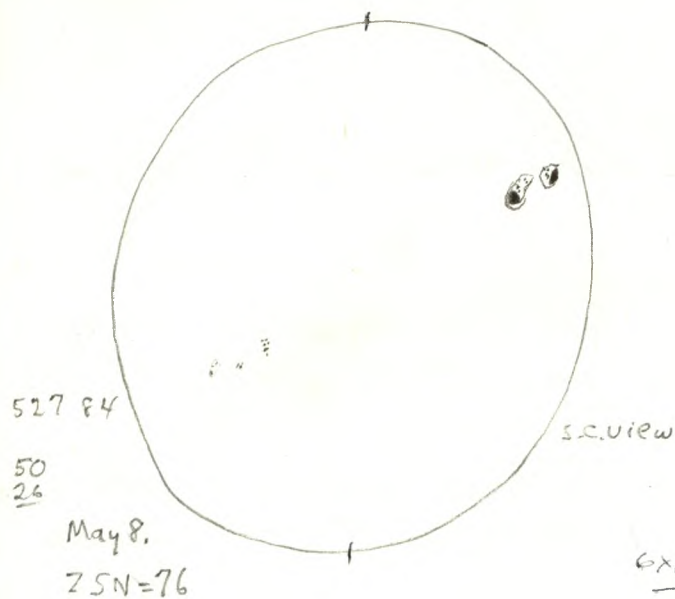
Before 3:00 p.m. E.S.T. I observed seeing two groups one with a very large spot.

Tue.-Wed. Apr. 23-24, 1985

At and after twilight I observed naked-eye seeing the brightest stars and Mars.



- Wed. Apr. 24, 1985
M.J.D. 46179.81 At about 2:30 p.m. E.S.T. I observed the sun seeing two groups, one of which was quite large
- Wed-Thu Apr 24-25, 1985
M.J.D. 46180.0 I observed naked eye and with binoculars seeing the asteroid Vesta near ϵ Vir.
- Thu-Fri Apr. 25-26
M.J.D. 46180.0 Again I observed naked eye and with 11x80 binoculars seeing the asteroid Vesta.
- Fri. Apr. 26, 1985
M.J.D. 46181.875 About 4:00 p.m. I observed the sun seeing two groups of spots, one quite large.
- Sat. Apr. 27, 1985
M.J.D. 46182.70 At about 11:45 a.m. E.S.T. at the Cataragui Town Centre during Astronomy Day I observed the sun seeing two sunspot groups.
- Sat-Sun Apr. 27-28, 1985
M.J.D. 46183.0 In the evening with a number of other Kingston Centre members I observed First Quarter lunar craters, and Alcor and Mizar.
- Mon. Apr. 29, 1985
M.J.D. 46184.89 At about 5:30 p.m. E.D.T. I observed the sun seeing four groups of spots.
- Tue. Apr. 30, 1985
M.J.D. 46185.79 At about 3:00 p.m. E.D.T. I observed the sun seeing two groups of spots.
- Wed. May 1, 1985
M.J.D. 46186.84 At about 4:15 p.m. E.D.T. I observed the sun seeing two groups of spots.
- Wed-Thu May 1-2, 1985
M.J.D. 46187.0 At about 2:00 a.m. E.D.T. I observed an interesting curved-arc Aurora while looking through the window. It seemed slightly active
- Fri. May 3, 1985
M.J.D. 46188.8 Shortly after 3:00 p.m. E.D.T. I observed the sun seeing about 5 small spots.



Wed. May 8, 1985 AT about 6:30 p.m. E.S.T. I observed the sun seeing ⁽⁵⁾ ~~four~~ groups of
M.J.D. 46193.93 spots with two ⁽²⁾ large spots.

Wed.-Thu. May 8-9, 1985 I observed naked-eye and with 11x80 binoculars seeing
M.J.D. 46194.0 M45, possibly M51, Saturn, and other objects

Thu. May 9, 1985 I observed the sun seeing 6 groups including 2 very large
M.J.D. 46194.83 ones. Guest observer:
The first sunspots I observed in my life. *Johny Bernal*

Thu.-Fri. May 9-10, 1985 I observed on a night of fair transparency and mediocre
M.J.D. 46195.0 seeing, using the C-14 to observe M51, M13, M45, M57,
Saturn & Leonis, Alcor and Mizar, and several other
faint galaxies — they set my head
spinning. *Johny Bernal*

Mon. May 13, 1985 Before 2:00 p.m. E.D.T. I observed the sun seeing one
M.J.D. 46198.74 group including one large spot.

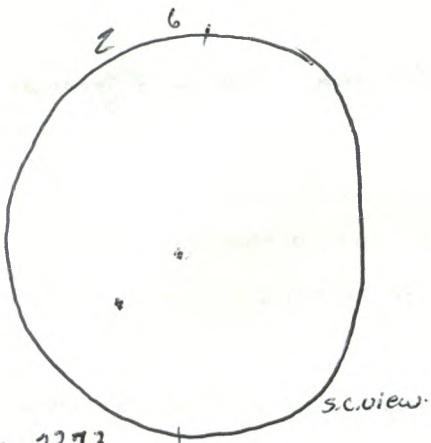
Fri.-Sat. May ~~17~~ 18, 1985 I observed briefly naked eye on a night with fair
M.J.D. 46203.0 transparency and only fair seeing.

Sat. May 18, 1985 Before 12:00 noon E.D.T. I observed the sun seeing
M.J.D. 46203.65 four groups of spots

Sun. May 19, 1985 AT about 12:00 noon E.D.T. I observed the sun seeing
M.J.D. 46204.6 three groups of sunspots.

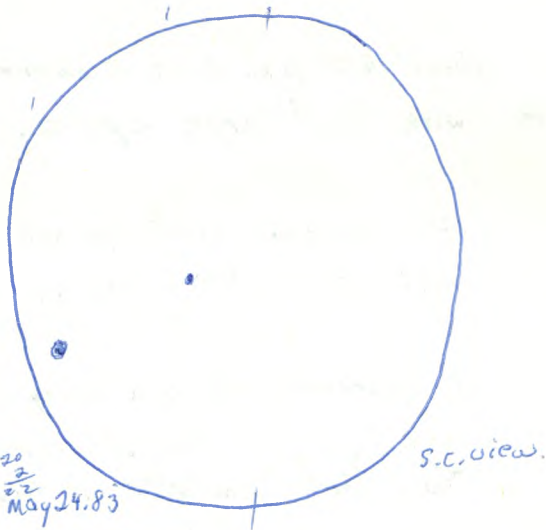
Tue. May 21, 1985 AT about 6:00 p.m. E.D.T. I observed the sun seeing two
M.J.D. 46206.9 groups of spots

Wed. May 22, 1985 AT about 3:30 p.m. E.D.T., I observed the sun seeing two
M.J.D. 46207.81 groups of spots.



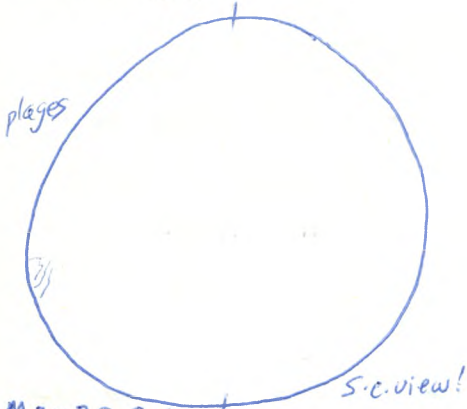
May 23.73
2x10=2018

Z.S.N. = 28

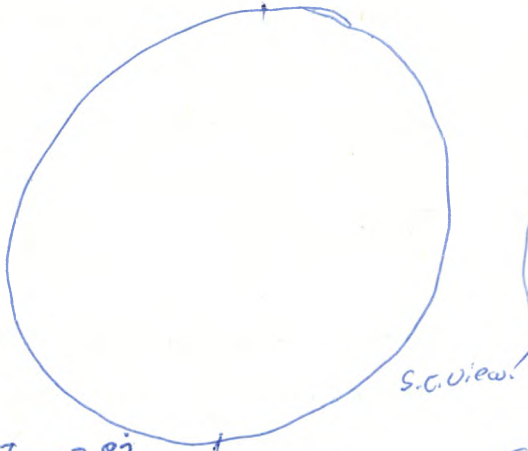


2x10=20
2
May 24.83

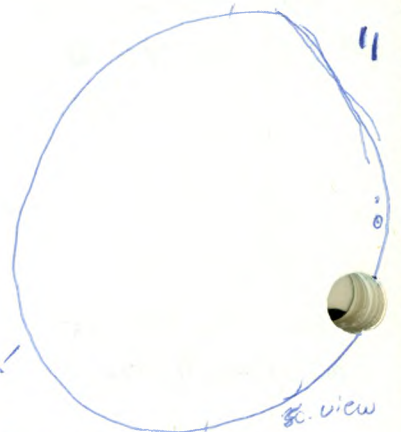
Z.S.N. = 22



May 28.84
Z.S.N. = 0



June 2.83
Z.S.N. = 0



June 3.
Z.S.N. = 22

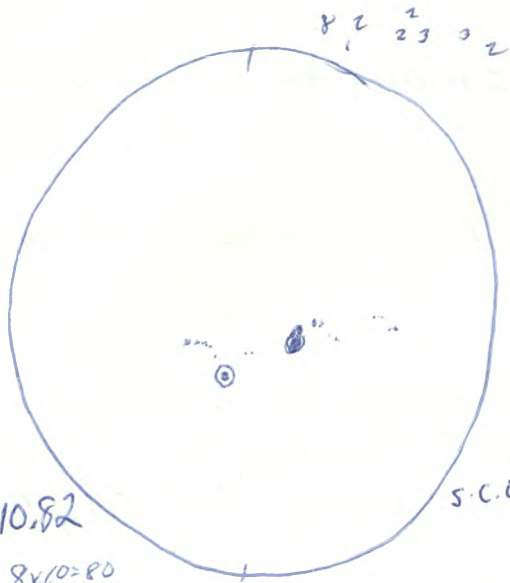


June 4.75
2x10
11
Z.S.N. = 31



June 8.84
4x10=40
+ 15
Z.S.N. = 55

- Thu. May 23, 1985. At about 1:40 p.m. E.D.T. I observed the sun seeing two groups of spots.
 M.J.D. 46208.73
- Fri. May 24, 1985 At about 4:00 p.m. E.D.T. I observed the sun seeing two sunspots.
 M.J.D. 46209.83
- Fri-Sat May 24-25, 1985 After the Kingston Centre meeting^{at about 1:00 a.m. E.D.T.,} I observed with Rolf and Linda Meier who stopped in on the way to Ottawa. We observed Saturn, M4, M13, M57 and M27.
 M.J.D. 46210.0
- Tue. May 28, 1985. At about 4:20 p.m. E.D.T. I observed the sun seeing 10 sunspots.
 M.J.D. 46213.84
- Sun. June 2, 1985 At about 4:00 p.m. E.D.T. I observed the sun seeing no sunspots.
 M.J.D. 46218.83
- Mon. June 3, 1985 At about 6:30 E.D.T. I observed the sun seeing two sunspots that had recently appeared.
 M.J.D. 46219.93
- Tue. June 4, 1985 At about 1:00 p.m. E.D.T. I observed the sun seeing 2 groups of sunspots
 M.J.D. 46220.75
- Thu-Fri. June 6-7, 1985 For about one hour from about 11:45 to 12:45 a.m. E.D.T., I observed with 11x80 binoculars, seeing M4, M13, Saturn, the area of the North America Nebula. For a while during the observing period there was a glowing Aurora almost due North, occasionally brightening into rays.
 M.J.D. 46223.0
- Sat. June 8, 1985 At about 4:15 I observed the sun seeing four groups of spots. (Guests: Michael Watson and Peter Broughton.)
 M.J.D. 46224.84
- Sat-Sun June 8-9, 1985 For about one half hour or less around midnight E.D.T. I observed naked-eye seeing a meteor in Draco that was about -3 magnitude. The transparency was poor because of haze
 M.J.D. 46225.0

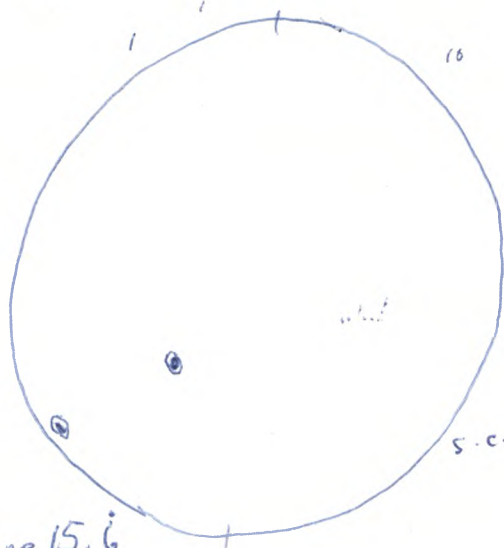


June 10.82

s.c.view.

$$8 \times 10 = 80$$

$$Z.S.N. = \frac{23}{103}$$

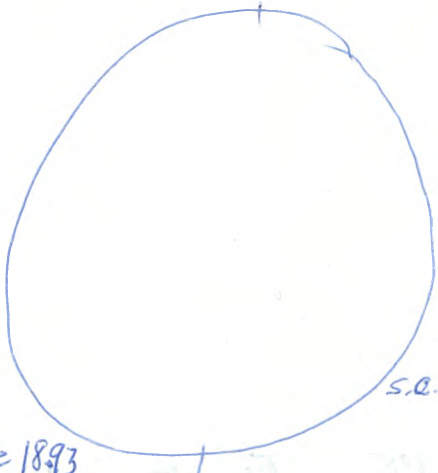


June 15.6

s.c.view.

$$3 \times 10 = 30$$

$$Z.S.N. = \frac{12}{42}$$



June 18.93

s.c.view.

$$Z.S.N. = 0$$

Sun.-Mon. June 9-10, 1985 Around midnight I observed naked-eye, seeing a
M.J.D. 46226.0 magnificent Aurora with spikes up to the zenith. It
* extended from Northwest to Northeast.

Mon. June 19, 1985 At about 3:20 E.D.T., I observed the sun seeing
M.J.D. 46226.82 eight groups of sunspots.

Mon-Tue June 10-11, 1985 While observing naked eye between 1:00 a.m. and 2:00
M.J.D. 46227.0 a.m. E.D.T., I observed an inactive glow of
Aurora in the North.

Fri.-Sat. June 14-15, 1985. On a night of good transparency and after the Centre
M.J.D. 46231.0 meeting I observed from after midnight until about
2:00 a.m. E.D.T. using the C-8 and the Lunicon diagonal
and several oculars - mainly the 32^{mm} König and 32^{mm}. 2nd
Erffle. I observed M4, M22, M13, M27, M57, Saturn,
Jupiter, M51, M11, Algol, and Cor Caroli

Sat. June 15, 1985. At about 12:00 noon E.D.T. I observed the sun seeing
M.J.D. 66231.6 three sunspot groups.

Tue. June 18, 1985 At about 6:30 p.m. E.D.T., I observed the sun seeing no
M.J.D. 46234.93 spots

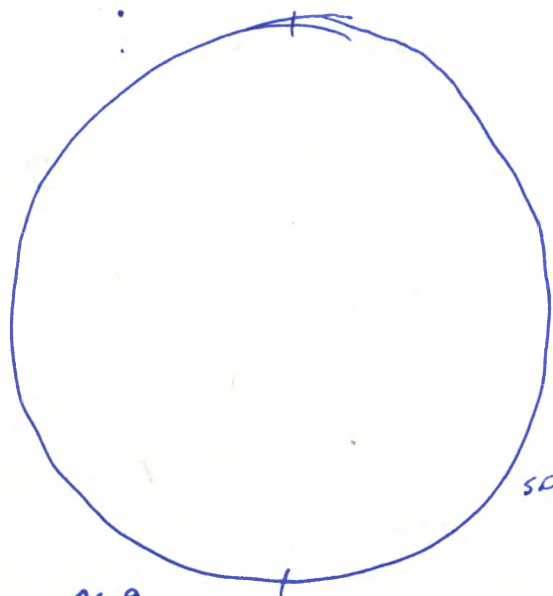
Tue-Wed. June 18-19, 1985 From about 8:50 to about 9:20 p.m. E.D.T. (0:50-1:20 U.T.) I
M.J.D. 46235.0 tried to observe a very young moon, without knowingly seeing
it. I observed from the roof of the house toward the northwest
where the horizon was very good. There were some clouds
but transparency seemed good in at least part of what seemed
the desired area for observing. The moon was a little
over thirteen hours and would have been virtually impossible
to see.

Later from about 11:30 to 12:25 (3:30 to 4:25 U.T.) I
observed with 11x80 binoculars seeing M4, M51, Collinger 399, and
numerous objects in the Milky Way. Before the clouds rolled in, the transparency
was excellent. The Milky Way stood out very well.



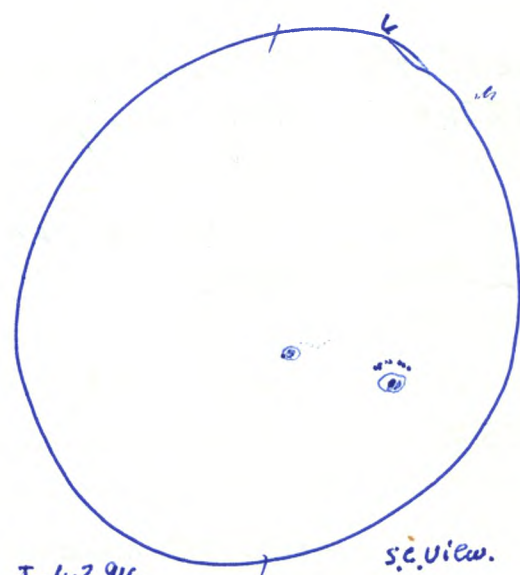
June 19, 916
Z.S.N. = 11

S.C. view.



June 26.9
Z.S.N. = 0

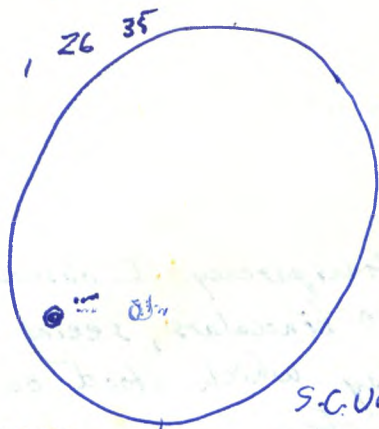
S.C. view.



July 3, 916
Z.S.N. = $2 \times 10:20$
 $\frac{17}{37}$

S.C. view.

- Wed. June 19, 1985
M.J.D. 46235.916 At about 6:00 p.m. E.D.T. (22:00h. U.T.) I observed the sun seeing one sunspot.
- Wed.-Thu. June 19-20, 1985
M.J.D. 46236.0 On a night of excellent transparency I observed naked-eye and with 11 x 80 binoculars, seeing many objects along the Milky Way which stood out very well against a dark sky.
- Thu.-Fri. June 20-21, 1985
M.J.D. 46237.0 I observed naked-eye for a period of time around midnight seeing objects along the Milky Way.
- Fri.-Sat. June 21-22, 1985
M.J.D. 46238.0 Using the C-14, I observed from the observatory for the first time in a long while - both before and after moonset. I observed Saturn, M13, M57, some galaxies in the Coma-Virgo Cluster, M108, M97, M109, M92, M101, M51, M12, M11, M17 (The Omega Nebula), M22, M27, and Jupiter.
- Tue.-Wed. June 25-26, 1985
M.J.D. 46242.0 With a First Quarter Moon shining brightly, I observed with the Astroscan 2000, seeing M10, M12, M4, β Scorpii, Saturn, and lunar craters.
- Wed. June 26, 1985
M.J.D. 46242.9 At about 5:40 p.m. E.D.T. (21:40 U.T.) I observed the sun seeing no sunspots but considerable granulation.
- Fri.-Sat. June 28-29, 1985
M.J.D. 46245.0 While at the R.A.S.C. General Assembly in Edmonton, I observed with a group who went up to the top of the physics building to observe from the observatory using a 12" Dall-Kirkham reflector. We observed Saturn, the Moon, and ϵ Hyrae.
- Wed. July 3, 1985
M.J.D. 46249.916 At about 6:00 p.m. E.D.T. (22:00 U.T.) I observed the sun seeing two groups of sunspots.
- Thu.-Fri. July 4-5, 1985
M.J.D. 46251.0 With the C-14 on a night of poor transparency and fair seeing I observed M10, M12, Saturn, Jupiter, M57, δ Herculis and M13.



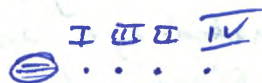
July 8.72

$$\begin{array}{r} \text{Z.S.N.} = 3 \times 20 = 60 \\ + 62 \\ \hline \text{Z.S.N.} = 92 \end{array}$$



Saturn
July 9 2^h 28^m U.T.

S.C. view



Jupiter July 9 5^h U.T.

S.C. view



July 9.8

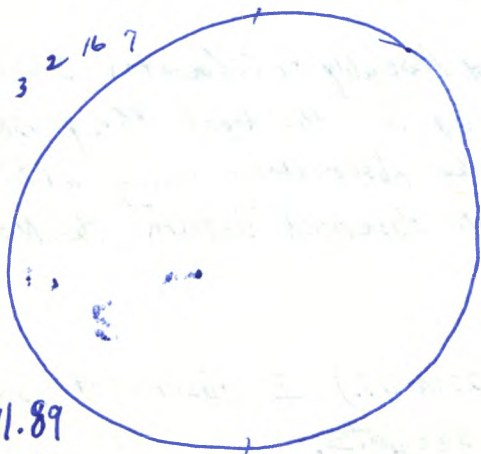
$$\begin{array}{r} 40 \\ + 61 \\ \hline \text{Z.S.N.} = 101 \end{array}$$



July 10.8

$$\begin{array}{r} 30 \\ + 39 \\ \hline \text{Z.S.N.} = 69 \end{array}$$

July 11 about 5^h U.T.



July 11.89

$$\begin{array}{r} 40 \\ + 28 \\ \hline \text{Z.S.N.} = 68 \end{array}$$

Mon. July 8, 1985
M.J.D. 46254.72

At about 10:30 p.m. E.D.T. (17:30 U.T.) I observed the sun seeing 3 sunspot groups.

Mon.-Tue. July 8-9, 1985
M.J.D. 46255.0

On a night of good seeing and transparency I observed with the C-14 (and using the 32^{mm} König ocular for most objects) observing Saturn and 4 of its satellites, M13, NGC 6207 (near M13), M92, M10, M12, M4, NGC 6144 (near Antares), M80, M5, & Lyrae, M57, M101, M27, NGC 6802 (near the Coathanger), ^{M22, M28, M11, M8, M40,} Jupiter, and ^{NGC 6960,} the Veil Nebula. I looked for Comet Giacobini-Zinner but was not certain of having seen it. There was a glowing Aurora in the North.

Tue. July 9, 1985
M.J.D. 46255.8

At about 3:15 p.m. E.D.T. (20:15 U.T.) I observed the sun seeing four groups of sunspots.

Wed. July 10, 1985
M.J.D. 46256.8

At about 3:15 p.m. E.D.T. (19:15 U.T.) I observed the sun seeing three groups of spots.

Wed.-Thu. July 10-11, 1985
M.J.D. 46257.0

On a night of exceptionally good transparency and only fair seeing, I observed with the C-8 and 11x80 binoculars seeing Saturn, Jupiter, Uranus, Neptune, M27, M57, M51, M13, M22, M11, M30, the North America Nebula, the close "twin globular clusters" near γ Sgr (NGC 6522 and NGC 6528), M5, M21, the Lagoon Nebula, and the Trifid Nebula.

Thu. July 11, 1985
M.J.D. 46257.89

At about 5:30 p.m. E.D.T., I observed the sun seeing four groups of sunspots.

Thu.-Fri. July 11-12, 1985
M.J.D. 46258

On a night of very good transparency I observed with the C-14 seeing Mercury, M5, M13, NGC 6522, NGC 6528, NGC 6638 near λ Sgr, NGC 6642 near M22, Saturn, Jupiter, M11, Jupiter, and probably Stephan's Quintet. I also found Uranus.

Ellipse.

$$\left(\frac{x}{\text{maj } ax}\right)^2 + \left(\frac{y}{\text{min } ax}\right) = 1.$$

$$\text{maj } ax = R \cos e$$