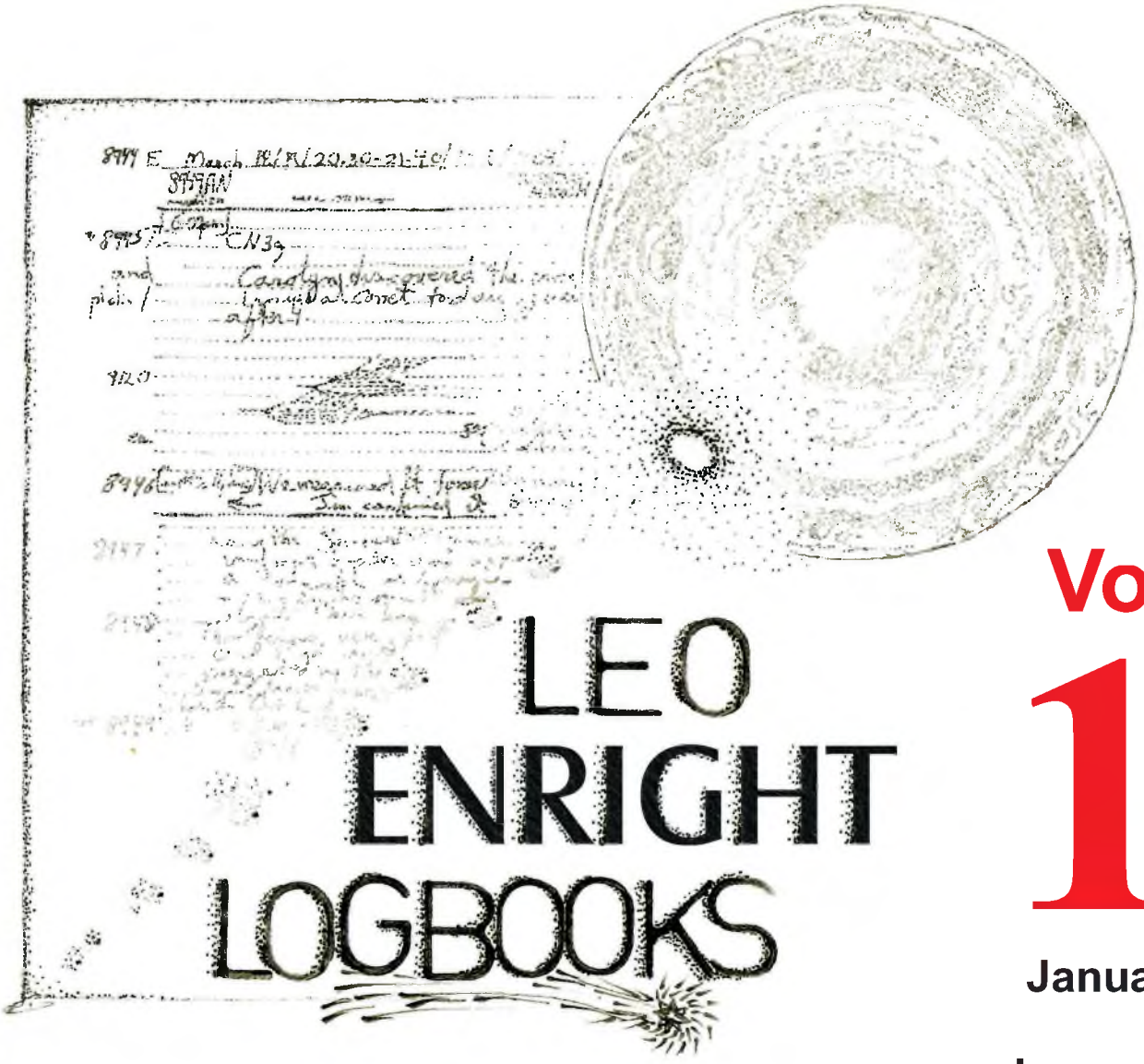


LEO ENRIGHT LOGBOOKS

Volume 14

January 1, 1998
to
January 31, 1999

14.

Fanco

cahier SCIENCE book

PAPIER ÉPAIS — HEAVYWEIGHT PAPER — 100 PAGES

name • nom Leo Enright

subject • sujet: Observing Jan. 1, 1998 — Jan. 31, 1999

Fanco
606 DE COURCELLE
MONTREAL H4C 3L5
49-1092

WHERE FACILITIES EXIST
LÀ OÙ LES INSTALLATIONS NÉCESSAIRES EXISTENT

0 55206 91092 9

11" x 8 3/8" • 279 mm x 212 mm

Globulars #	Done	Aug. 26, 1997
Page 1 – 28	9	
2 - 28	12	
3 - 28	8	
4 - 28	16	
5 - 6	3	

Observing Log

Code:

Year	Day	Date	Time	Place	Sky Conditions S=Seeing T=Transparency	Instrument(s)

e.g.

Time:

UT = Universal Time
n = night
m = morning
f = forenoon
a = afternoon
e = evening

Place:

00 = 0so Observatory
nd = north deck
sh = shoreline of lake
ss = solar station
t = table at solar station
in = indoors
r = on roof of house
ice = on ice on lake
sd = south deck
y = yard

Sky Conditions:

s = seeing
t = transparency
0-10 scale: 0 = nil or extremely poor
10 = absolutely superb
cml = crescent moonlight
gml = gibbous moonlight
fml = full moonlight

Instruments:

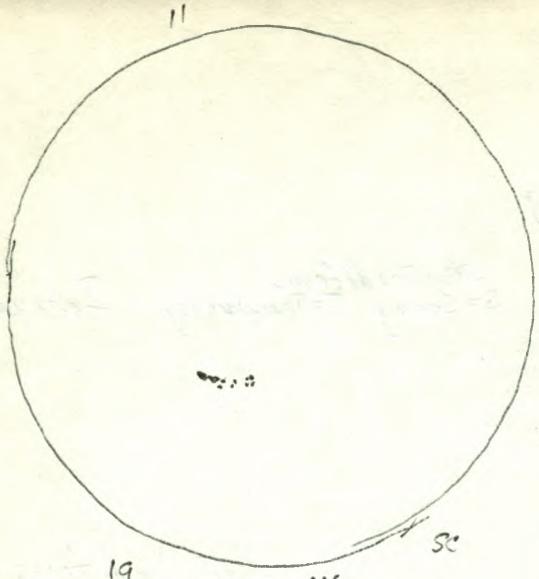
C-14 = Celestron 14 - 35.5cm SCT
C-8 = Celestron 8 - 20cm SCT
Ast = Astroscan - 10.5cm RFT → 12½" = Denise's 32cm Meade Dobsonian.
20x100b = 20x100 binocular
11x80b = 11x80 binocular
9x63b = 9x63 binocular
7x35b = 7x35 binocular
32 = 32mm ocular
32-2 = 32mm 2" ocular
K = Kellner
O = Orthoscopic
Ko = König
WA = Wide Angle
P = Plössl
ph = photography
p/b = piggyback
o/a = off axis
Ba = Barlow lens
A.P.F = Astro-Physics Solar Filter.
T.O.F = Thousand Oaks Solar Filter.
EG = Easy Guider.
EGlf = Easy Guider, lens forward
EGlb = Easy Guider, lens back

Objects:

PN = planetary nebula
GC = globular cluster
OC = open cluster
SC = spiral galaxy
EG = elliptical galaxy
D = double star
LPV = long period variable

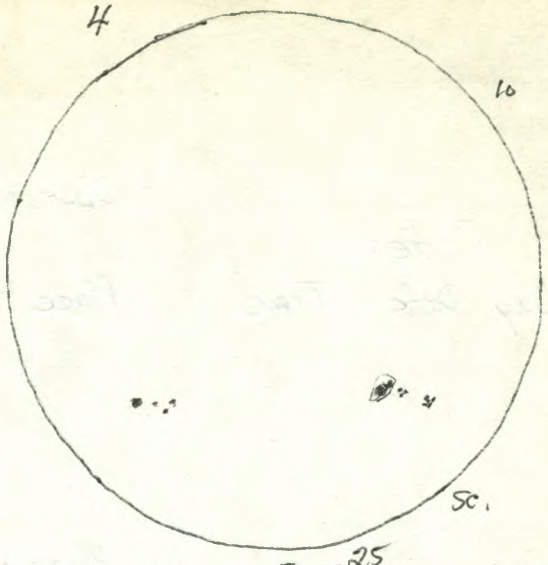
Atlases:

U = Uranometria
U2k = Uranometria Chart 2k
AAVSO = AAVSO Variable Star Atlas
Cam = Cambridge Star Atlas 2000.0



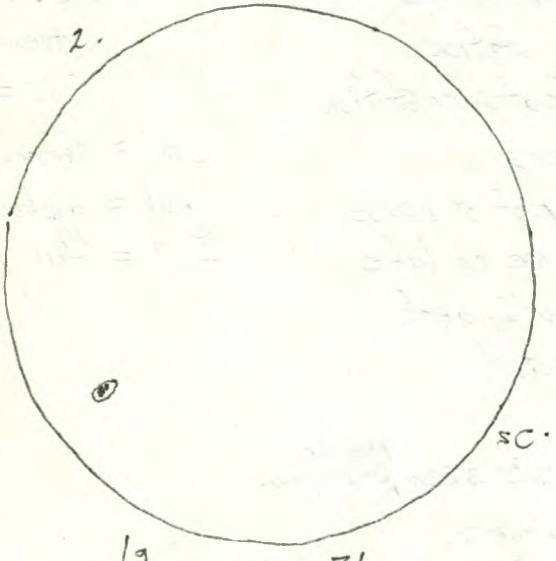
1g
11s
RSN11

Jan. 14
17:55-18:00 UT



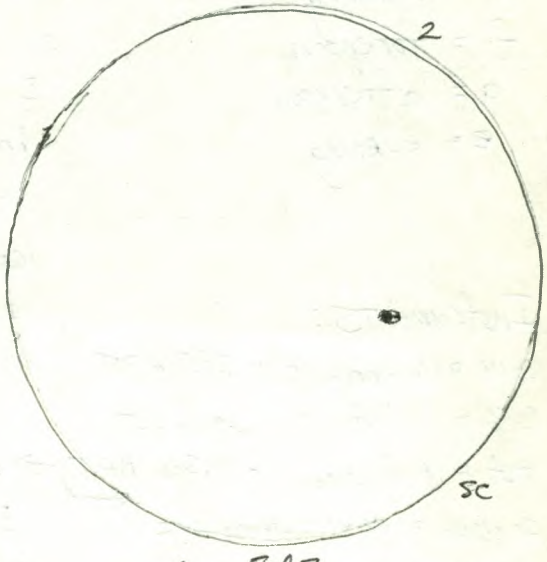
2g
14s
RSN34

Jan. 25
18:15-18:30 UT



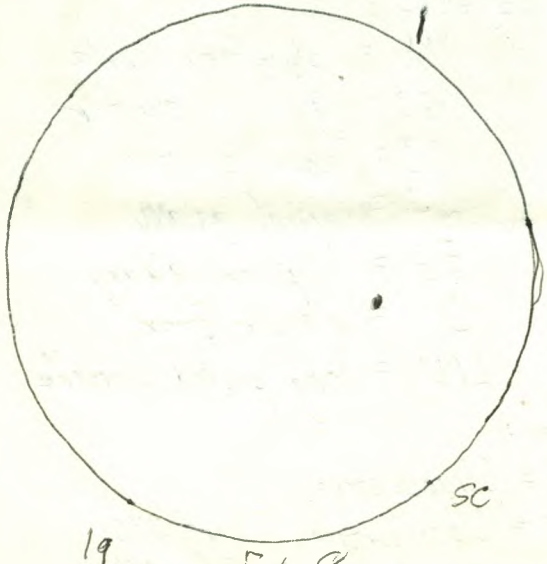
1g
2s
RSN12

Jan 31.
21:00-21:05 UT



1g
2s
RSN12

Feb. 7



1g
1s
RSN11

Feb. 8
19:55-20:00 UT

1998

Observing Log

W. Jan. 14 17:55-18:00 UT ss C-8, 32, 28, 20, 15.5
T.O.F.
sun lg 11 s RSN 21

This was the first serious observation in some time because of the massive ice storm with over 6 days without hydro-electric power. Earlier, in the morning the waning gibbous moon and the earth's shadow had been very clearly seen in Kingston while Denise and I were leaving the Days Inn where we stayed the previous night.

Th. Jan. 14 03:15 UT nd S-8? T9.5 ! ne
- winter constellations - briefly under superb conditions, finally after many January nights with very poor conditions including the major ice storm and many nights of cloudy weather and first night after the day I received my cast on my arm after breaking it the previous Saturday while working at cutting wood as a result of the massive ice storm.

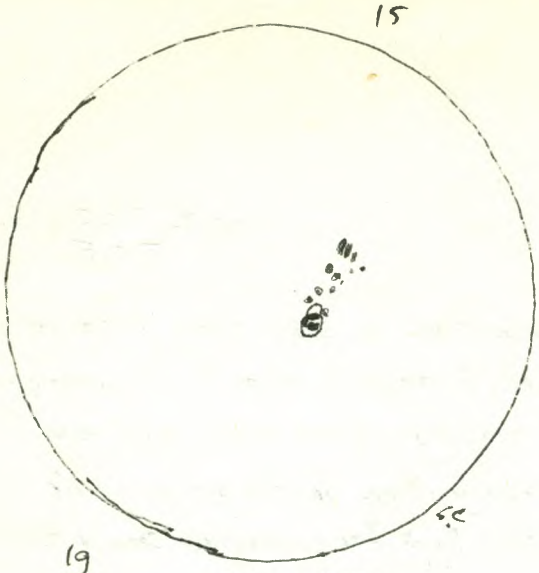
Su. Jan. 25 18:15-18:30 UT C-8, 32, 28
T.O.F.
sun 2g 14s RSN 34

Sa. Jan. 31 21:00-21:05 UT t C-8, 32, 28.
T.O.F
sun lg 2s RSN 12
guests: Leo Brodeur
John Hurley (1g, 3s) ft

F-S. Feb. 6-7 m. 01:35-01:60 UT t gmb Ast, 32, 8
Saturn and Titan - about 3 ring diameters "to the left" and "up a bit".
m 11:36 UT (6:36 a.m. E.S.T.) in m twl ne
Venus extremely brilliant in S.E. morning sky, up about 15°

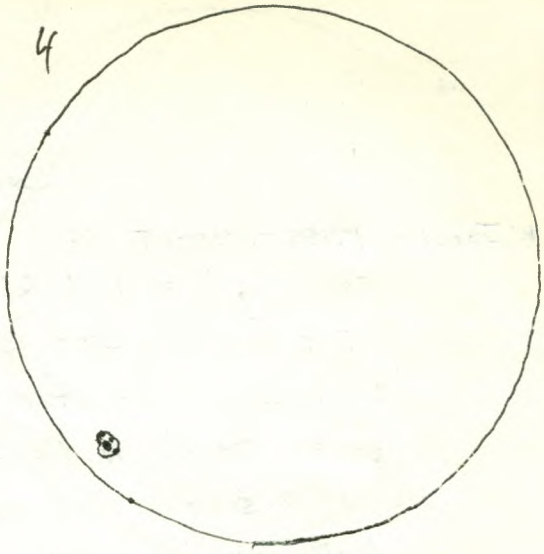
Sa. Feb. 7 19:30-19:35 UT doorstep of o.o. (because of my broken arm) C-8, 32, 28, 20, 15.5
T.O.F.
sun lg 2s RSN 12

Su. Feb. 8 19:55-20:00 UT doorstep of O.O. C-8, 32, 28, 20, 15.5
Sun lg 1s. RSN 11



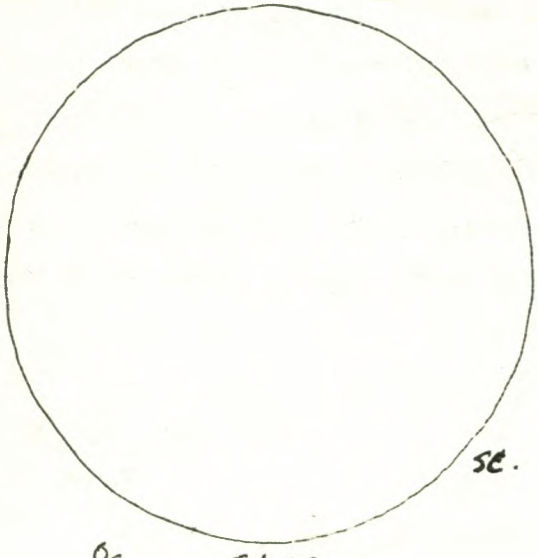
1g
15s
RSN25

Feb. 15, 1998
19:25-19:30UT



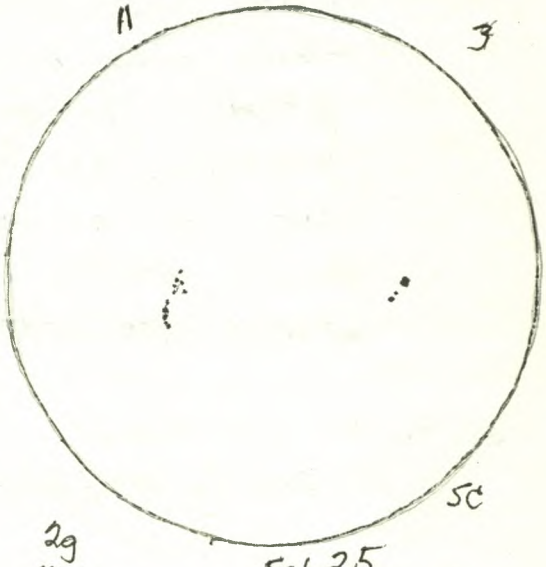
1g
4s
RSN14

Feb. 21
19:30-19:35UT



0g
0s
RSN0

Feb. 22
19:25-19:30UT



2g
14s
RSN34

Feb. 25
20:45-20:50UT

1998

S.-M. Feb. 8-9 e 22:35-22:40 UT ice twl ne
- earth's shadow seen very distinctly up about 10° in the SE, E, NE, about 14 to 19 minutes after sunset which was about 22:21 U.T.

Su. Feb. 15 19:25-19:30 UT doorstep of O.O. (because of my arm being in a cast) C-8, 32, 28, 20, 15.5
Sun 1g 15s RSN25 T.O.F.

Sa. Feb. 21 19:30-19:35 UT doorstep of O.O. C-8, 32, 28, 20, 15.5
Sun 1g 4s RSN14 T.O.F.

Sa.-Su. Feb. 21-22 00:20-01:00 UT beside t. s(?) T 2 about 90% overcast ne; 20x100b.
ne: Saturn in W. and some stars of winter constellations
20x100b: M42

Su. Feb. 22 19:25-19:30 UT doorstep of O.O. C-8, 32, 28, 20, 15.5
Sun 0g 0s RSN0 T.O.F.

S.-M. Feb. 22-23 00:20-01:30 UT near t. S-8(?) T 9.5-10.0 ne; 20x100b
ne: Winter constellations, Winter Milky Way, Zodiacal Light up almost to Pleiades and generally brighter than the Milky Way; one meteor of about mag. 3. Outstanding transparency.
20x100b: Comet Temple-Tuttle at about mag. 8, according to S.T. News Bulletin, at R.A 1h 14m Dec 11°.3 (See U172) about 7° N. of Saturn; M42 and M43 and stars nearby; R Lep. - bright at about mag. 7.5; NGC 2244 and the Rosette Nebula.

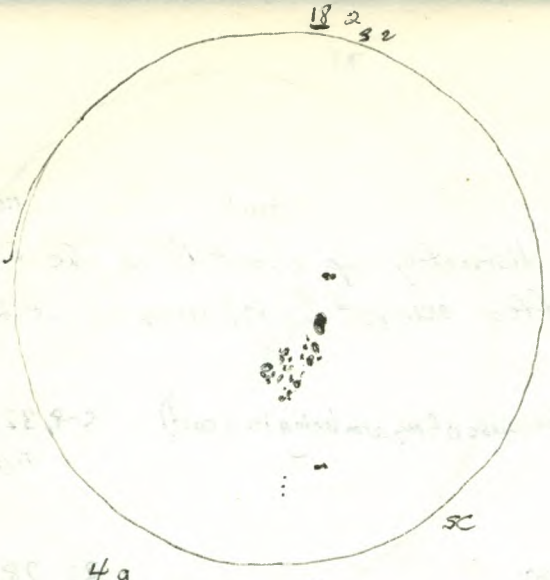
Comet Temple-Tuttle

W. Feb. 25. 20:45-20:50 UT doorstep of O.O. C-8, 32, 28, 20, 15.5
Sun 2g 14s RSN 34 T.O.F.

W.-Th. Feb. 25-26 03:20-03:40 UT nd, y S-8? T 9-9.5 ne.
winter constellations; Zodiacal Light

17:40 and 1:20 p.m. E.S.T near Portables 1+2

Th. Feb. 26 17:40-18:20 UT at S.L.H.S. n some cirrus cloud Alto, 21.5
At the time of the solar eclipse which was total in



4g
25S
RSN65

Mar. 15
19:25-19:30UT

1998

the Caribbean and which Denise saw from near Aruba, I took the Astroscan to school and did eyepiece projection onto the exterior wall of Portable 2. The eclipse magnitude was about 9% and obscuration about 4%. First Contact was about 17:41 UT and I began projection shortly after that and continued it until about 18:20. Maximum was at about 18:17 UT (1:17 p.m. E.S.T.). I was not able to detect any sunspots, perhaps because of the cirrus cloud. I also used welder's glass to view the eclipse. Some students also showed an interest in it.

Th.-F. Feb. 26-27 02:50 - 03:00 y S-7T9 ne

- another night of excellent transparency to enjoy the winter constellations, Zodiacal Light, Algol near minimum.

Th.-F. Mar. 12-13 03:50 - 04:00 UT y. 6mL ne

and 04:10 - 04:25 UT on chair near 00

On night of Penumbral Lunar Eclipse of mag .735 I observed under very clear conditions. I was surprised at how difficult it was to detect any darkening in the southern half of the moon. At various times during both sessions I thought it was possible to detect some darkening in the southern hemisphere of the moon, but it was subtle and the darkening observed seemed to be the fact that there was less glare from the moon in those areas.

subtle lunar eclipse (penumbral)

Su. Mar. 15 19:25 - 19:30 UT doorstep of 0.0. c-8, 32, 28, 20, 15.5 T.O.F.

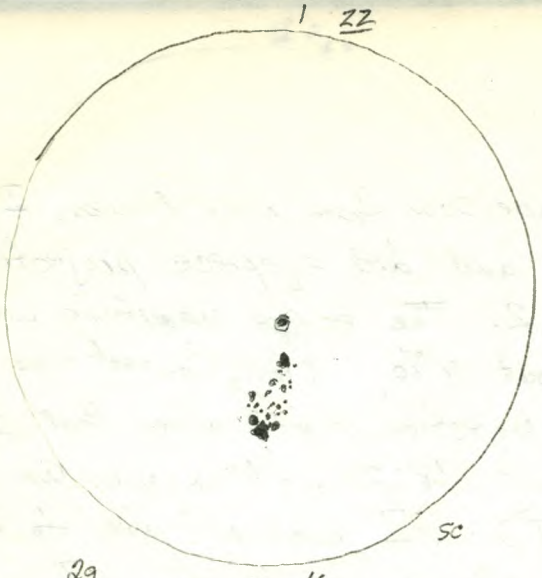
Sun 4g 25s RSN 65

S.-M. Mar. 15-16 00:50 - 01:40 UT near 0.0. S-7-8T8 ne; 9x63b

ne: winter and spring constellations; Zodiacal Light - excellent and up higher than the Pleiades; Winter Milky Way

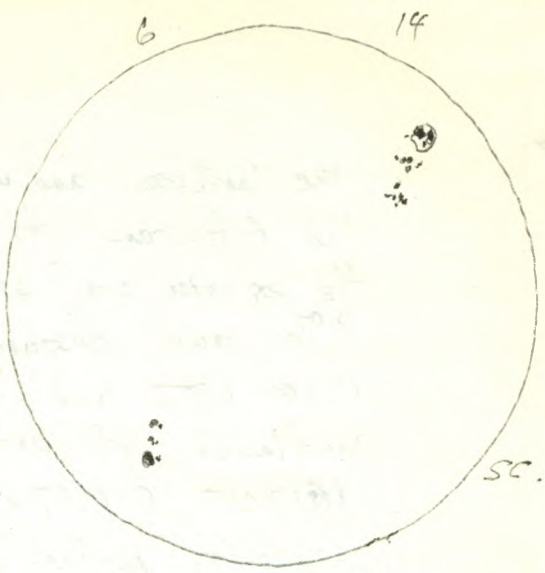
- began observing about 2 min after the end of astronomical twilight

9x63b: M41, M42, M35, M36, M37, M38, areas in Orion, Canis Major, Monoceros, Lepus, Taurus, U Ma.



2g
23S
RSN 43

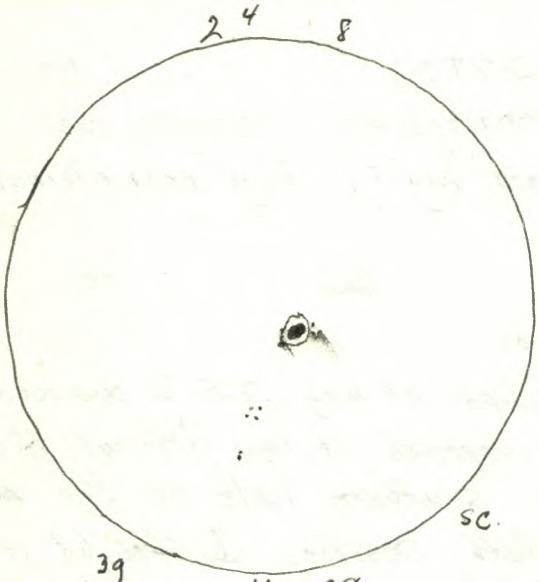
Mar. 16
19:20-19:25 UT



2g
20S
RSN 40

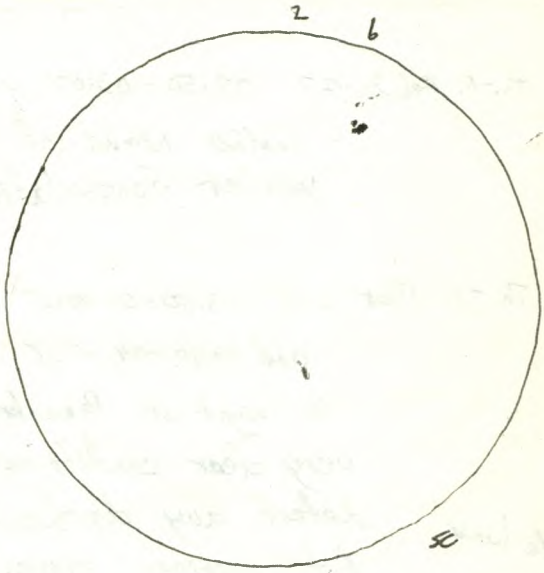
Mar-24
21:00-21:05 UT

a.a.



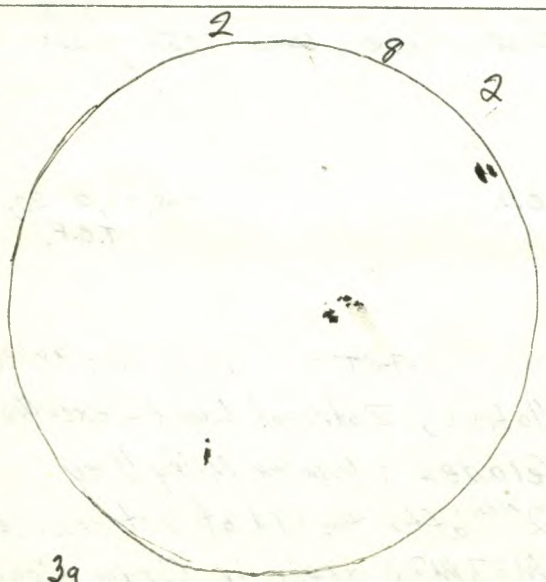
3g
14S
RSN44

Mar. 28
19:35-19:40 UT



2g
8S
RSN28

Apr. 4
20:30-20:35 UT



3g
12S
RSN42

Apr. 5
17:35-17:40 UT

1998

M. Mar. 16 19:20-19:25 UT doorstep of O.O. C-8, 32, 28, 20, 15.5 T.O.F.
Sun 2g 23s RSN 43

M.-T. Mar. 16-17 01:40-02:10 UT doorstep of O.O. S-8-9 T 9 ne; 9x63b.
ne: winter and spring constellations; Zodiacal Light - good; Winter Milky Way
9x63b: Pleiades, M41, M42.

T.-W. Mar. 17-18 02:00-02:10 UT y S-8? T 7-8 (haze) ne
- winter and spring constellations.

Tu. Mar. 24 21:00-21:05 UT on floor in O.O. C-8, 32, 28, 20, 15.5 T.O.F.
Sun 2g 20s RSN 40

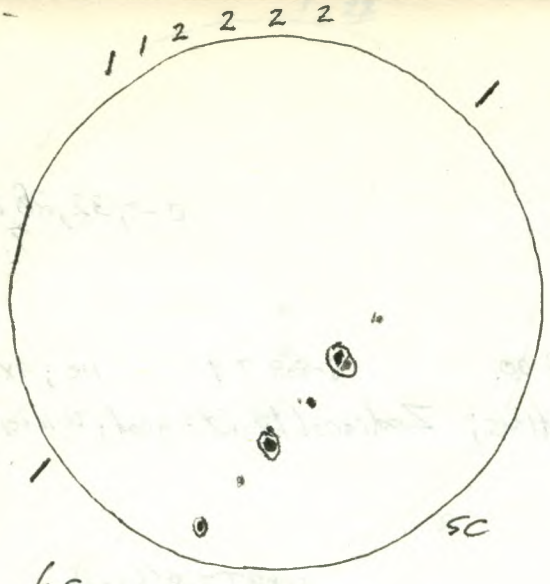
Sa. Mar. 28 19:35-19:40 UT doorstep of O.O. C-8, 32, 28, 20, 15.5 T.O.F.
Sun 3g 14s RSN 44

Su.-M. Mar. 29-30 03:15-03:25 UT y S-8(?) T 7 ne
- winter and spring constellations.
- The night before we were prevented from seeing or trying to see the young moon (20-21 hours old) by clouds. We were in Syracuse.
- This evening on arriving home at about 1:40 UT, the sky was very clear, with outstanding transparency. The
Z.L. Zodiacal Light was quite easy to see and the Winter Milky Way was quite bright. While riding from Syracuse to Kingston, I saw the young crescent moon (less than 2 days old) in the W. and Earthshine was very easy to see.

Sa. Apr. 4 20:30-20:35 UT doorstep of O.O. C-8, 32, 28, 20, 15.5 T.O.F.
Sun 2g 8s RSN 28

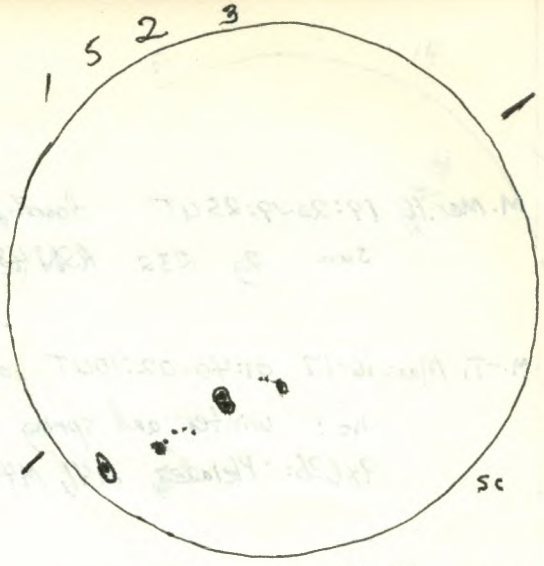
Su. Apr. 5 17:35-17:40 UT doorstep of O.O. C-8, 32, 28, 20, 15.5 T.O.F.
Sun 3g 12s RSN 42

F.-S. Apr. 10-11 00:50-01:35 UT y fml. ne
- observed constellations under a near full moon, expecting



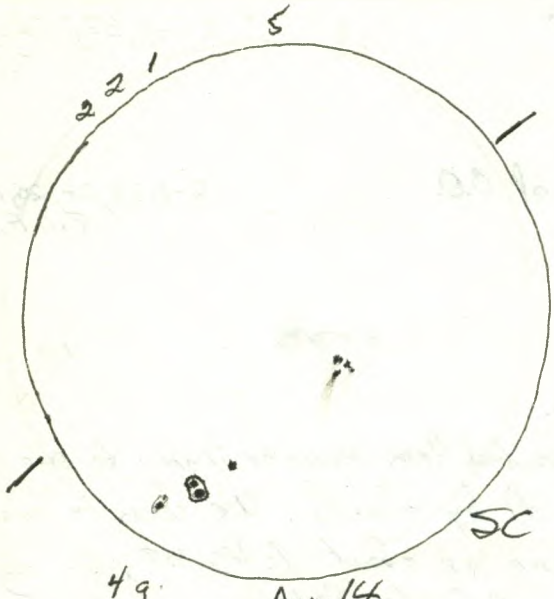
6g
10S
RSN 70

Apr. 11
18:25-18:30UT



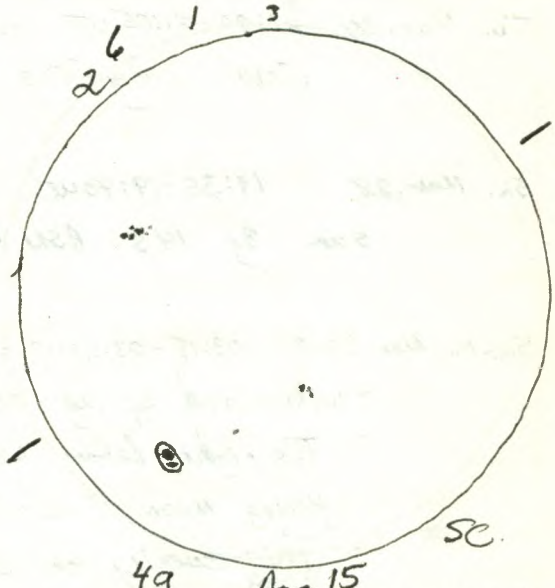
4g
11S
RSN51

Apr. 13
17:25-17:30UT



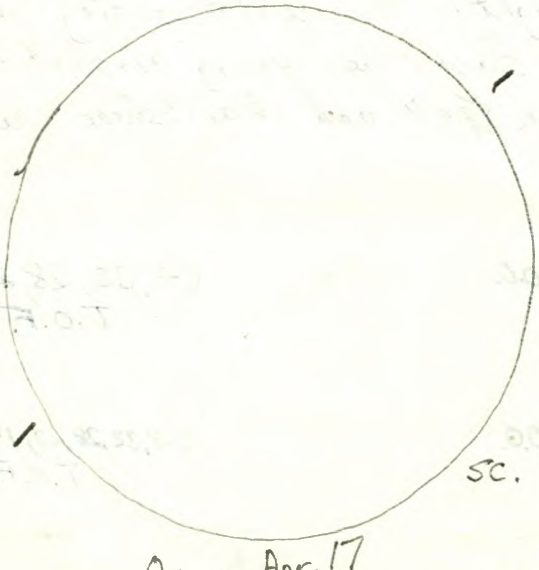
4g
10S
RSN50

Apr. 14
19:30-19:35UT



4g
12S
RSN52

Apr. 15
19:35-19:40UT.



0g
0S
RSN 0

Apr. 17
19:55-20:00UT

→ Moon in S.

Venus •

Jupiter •

ESE

morning Apr. 18 09:10 CT

1998

possibly to see an "April fireball" but I did not see any "April fireballs" or any meteors.

Sa. Apr. 11 18:25-18:30 UT t C-8, 32, 28, 20, 15.5
T.O.F.
sun 6g 10s RSN 70
Sky and Telescope's Weekly News Bulletin had mentioned that the Southern Hemisphere of the Sun had become quite active.

Sa.-Su. Apr. 11-12 01:55-02:35 UT y fal. ne.
- On night of "Easter Full Moon," after attending Easter Vigil in Bedford, I observed, thinking I might see one or several "April fireballs". I did not see any bright fireballs, but saw one meteor in UMa near the zenith. I observed constellations.

M. Apr. 13 17:25-17:30 UT t C-8, 32, 28, 20, 15.5
T.O.F.
sun 4g 11s RSN 51

Tu. Apr. 14 19:30-19:35 UT t C-8, 32, 28, 20, 15.5
T.O.F.
sun 4g 10s RSN 50

W. Apr. 15 19:35-19:40 UT t C-8, 32, 28, 20, 15.5
T.O.F.
sun 4g 12s RSN 52

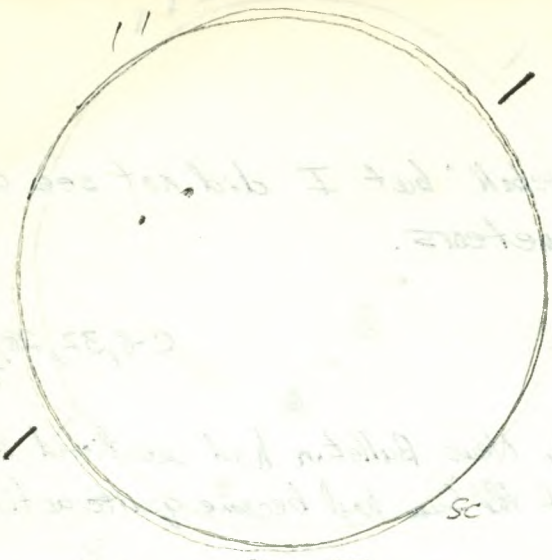
F. Apr. 17 19:55-20:00 UT t C-8, 32, 28, 20, 15.5
T.O.F
sun 0g 0s RSN 0

5:10-5:15 E.D.T

F.-S. Apr. 17-18 m 09:10-09:15 UT in twl ne
Venus and Jupiter close to each other in E.S.E

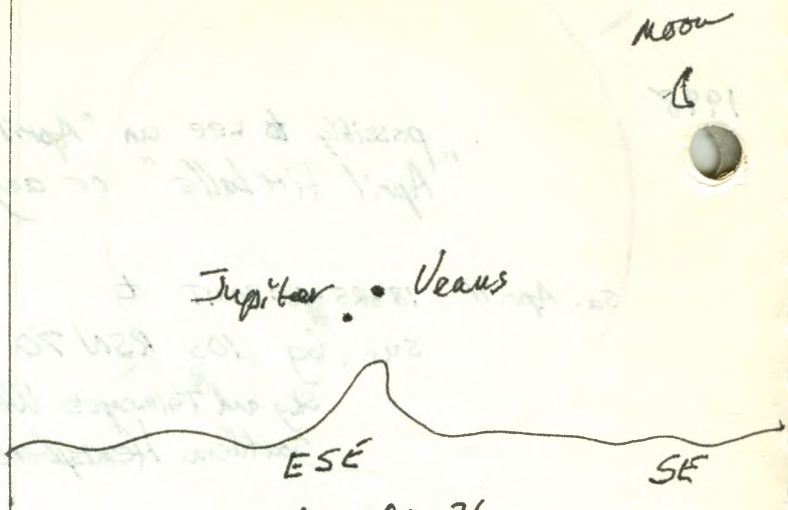
Sa. Apr. 18 18:55-19:00 UT t C-8, 32, 28, 20, 15.5
T.O.F.
sun 2g 2s RSN 22

Sa-Su. Apr. 18-19 07:50-04:40 UT y S-8(?)T 9. ne; 9x63b
ne: spring constellations
9x63b: several areas of the sky.

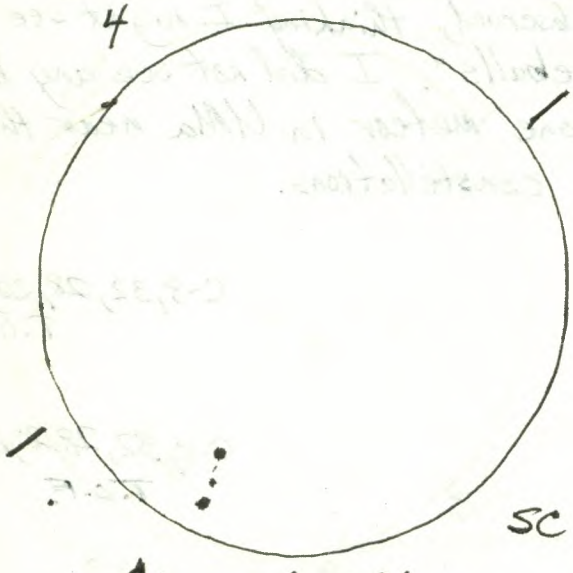


2g
2s
RSN22

Apr. 18
18:55-19:00 UT

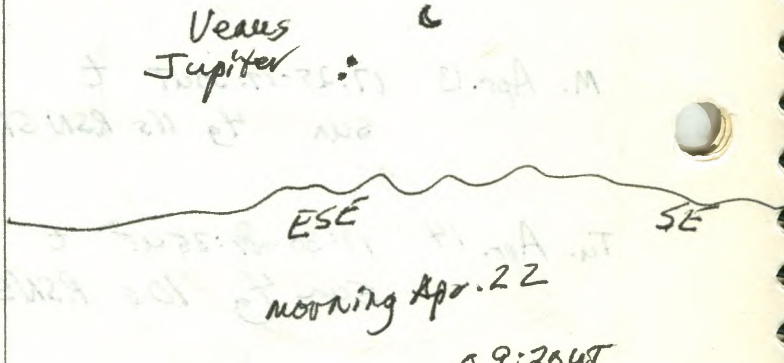


Morning Apr. 21
09:28 U.T.

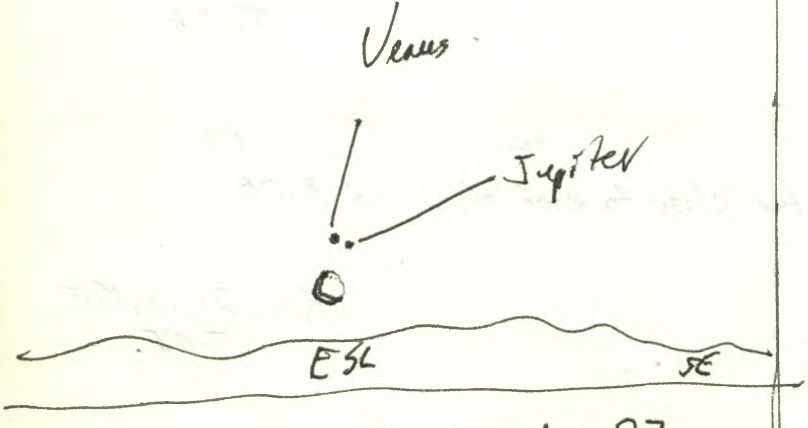


1g
4s
RSN14

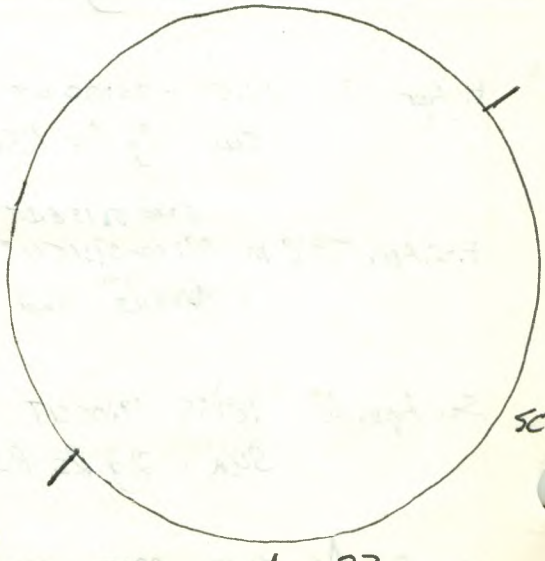
Apr. 21
21:50-21:55 UT



Morning Apr. 22
09:20 UT



Morning Apr. 23.
09:20 UT.



0g
0s
RSN0

Apr. 23
19:30-19:35 UT

1998

M:T. Apr. 20-21 m 09:25-09:30 UT (≈ 5:28 a.m. E.D.T.) in twl ne
Jupiter and Venus within about 1° in morning twl in E.S.E. sky.

T. Apr. 21 21:50-21:55 UT t C-8, 32, 28, 20, 15.5
sua 1g 4s RSN 14 T.O.F.

T-W. Apr. 21-22 m 09:00-09:40 UT (5:00 a.m. E.D.T.) y. W. and S. of house twl ne
Jupiter and Venus within about ½° in morning twl with moon about 5° to upper right
- photographed scene with Fujichrome 400

W.-Th. Apr. 22-23 m 09:00-09:38 UT (5:00 a.m. E.D.T.) y W. and S. of house twl ne
Jupiter and Venus within ½° or less in morning twl. Note difference from yesterday. (From parts of Africa and Asia, both were simultaneously occulted by the moon - an event not previously observed since before the invention of the telescope. - See S.+T. and O.H. page 150.) The moon was nearby about 2° away. Earthshine was obvious

Th. Apr. 23 19:30-19:35 UT t. C-8, 32, 28, 20, 15.5
sua 0g 0s RSN 0

Th-F. Apr. 23-24 m 09:28 UT (5:28 a.m. E.D.T.) in twl ne
Venus and Jupiter in E.S.E. with their relative positions quite noticeably different from the last two days. The moon was not seen. It would have been considerably lower than the two planets and perhaps difficult to see in the twilight by the time it would have risen above the trees. There seemed to be some haze in the sky, and it seemed to be not as clear as on the previous two mornings. An interesting dance of Jupiter and Venus!

Venus . . Jupiter.

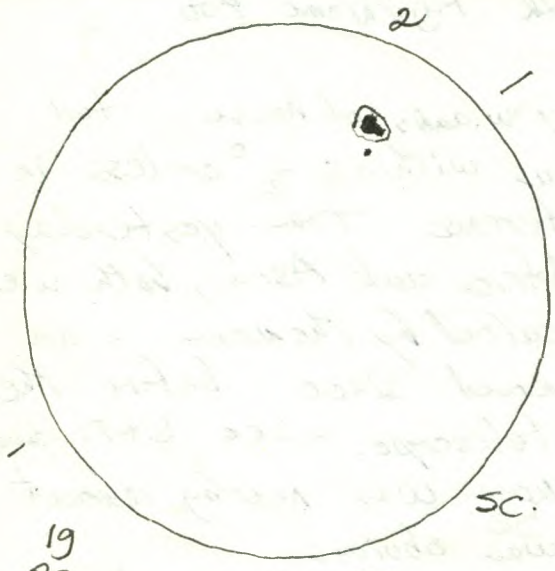
ESE SE

Morning Apr. 24.
09:28 UT.

Venus . . Jupiter

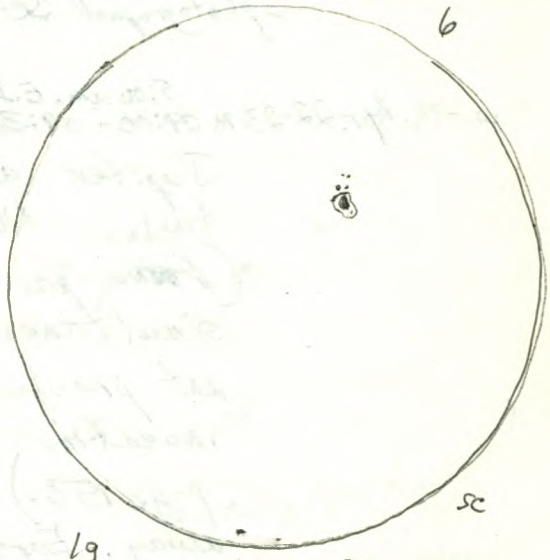
ESE SE

Morning Apr. 25
09:30 UT.



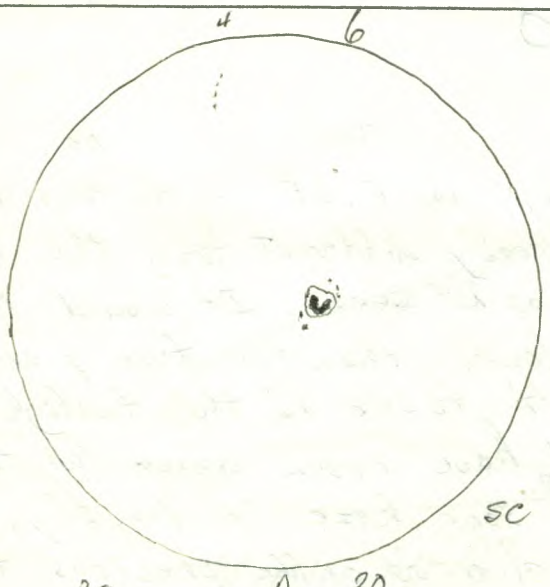
19
28
RSN12

Apr. 27
20:00 - 20:05 UT



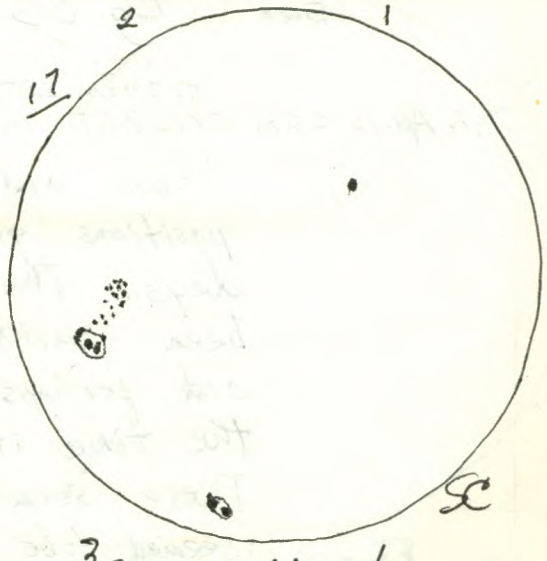
19
6S
RSN16

Apr. 28
19:25 - 19:30 UT



29
10S
RSN30

Apr. 30
19:55 20:00 UT



3g
20S
RSN50

May 6

1998

Th.-F. Apr. 24-25m 5:30am E.D.T. 09:30 UT in twl ne

Venus and Jupiter in ESE sky noticeably further apart (perhaps 1½°-2°) than yesterday

M. Apr. 27 20:00-20:05 UT t C-8,32,28,20,15.5 T.O.F.
sun 1g 2s RSN12 - very large spot with penumbra

T. Apr. 28 19:25-19:30 UT t C-8,32,28,20,15.5 T.O.F.
sun 1g 6s RSN16

T.-W. Apr. 28-29 00:40-00:45 UT y twl ne
- beautiful crescent moon in W. with earthshine — seen about 20° above the horizon.

Th. Apr. 30 19:55-20:00 UT t C-8,32,28,20,15.5. T.O.F.
sun 2g 10s RSN30

W. May 6 19:50-19:55 UT t C-8,32,28,20,15.5 T.O.F.
sun 3g 20s RSN50

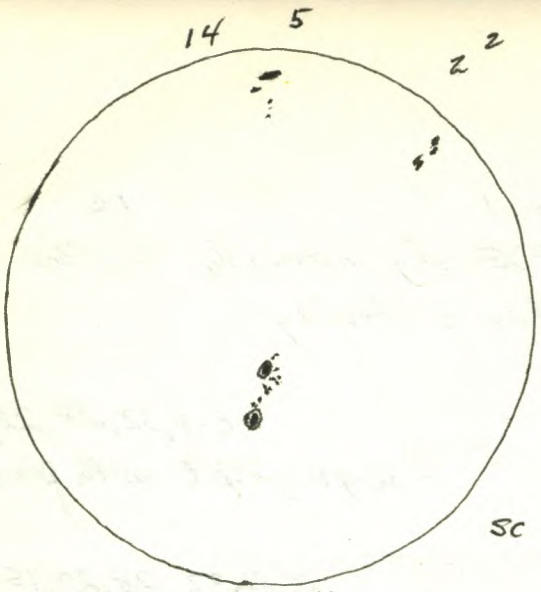
W. May 13 19:15-19:20 UT t C-8,32,28,20,15.5 T.O.F.
sun 4g 23s RSN63

Th. May 14 20:15-20:20 UT C-8,32,28,20,15.5 T.O.F.
sun 4g 29s RSN69

F. May 15 19:55-20:00 UT C-8,32,28,20,15.5 T.O.F.
sun 4g 27s RSN67

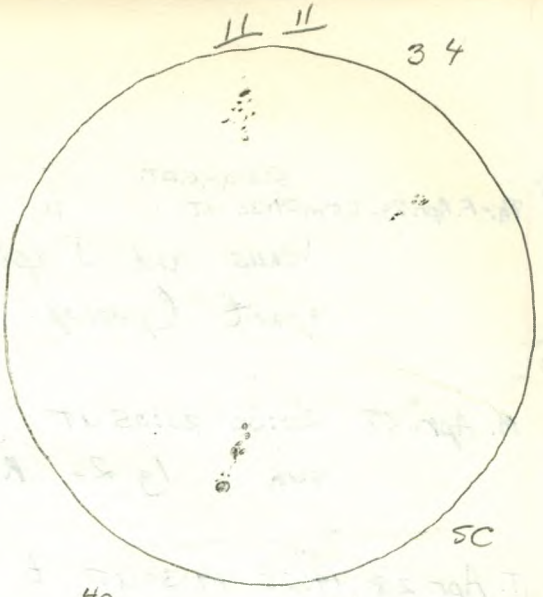
F.-S. May 15-16 03:00-04:20 UT y S-8(?)T 7-8 (hazy) ne
spring constellations - two meteors, about mag 2.5 and 3 high in the sky.

Sa.-Su. May 16-17 ?-05:00-05:35 UT
showed the observatory to Lionel Enright and his wife after they had visited us. Afterward I saw



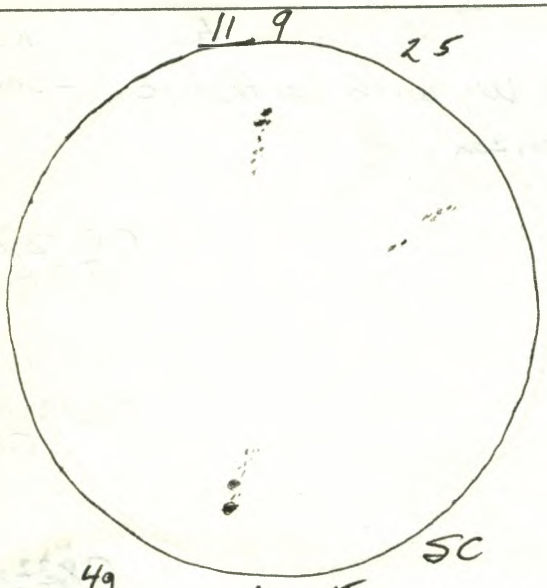
4g
23S
RSN63

May 13
19:15-19:20 UT



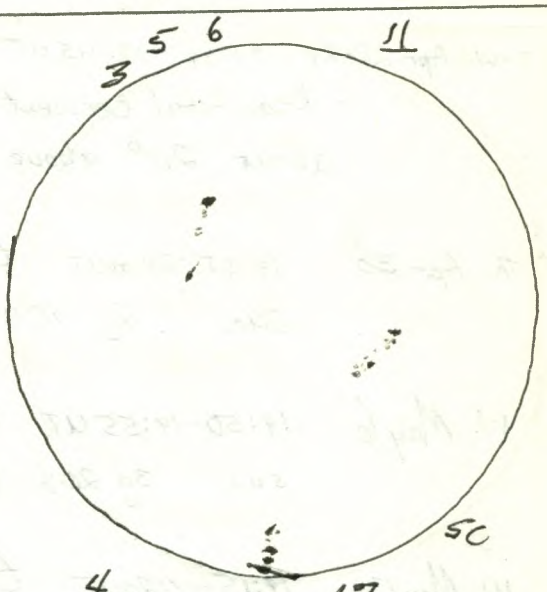
4g
29S
RSN69

May 14
20:15-20:20 UT



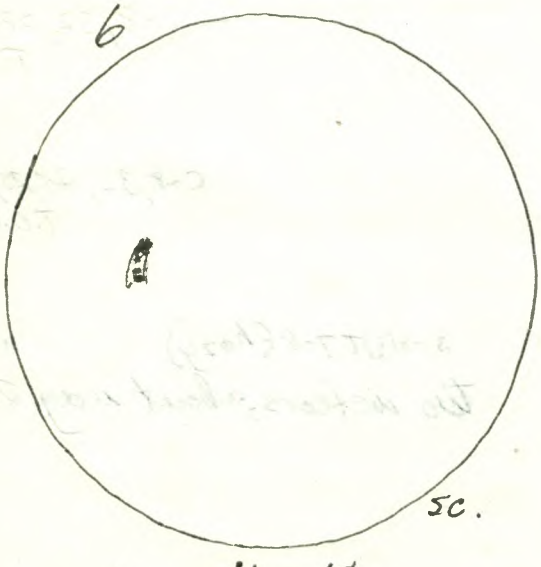
4g
27S
RSN67

May 15
19:55-20:00 UT



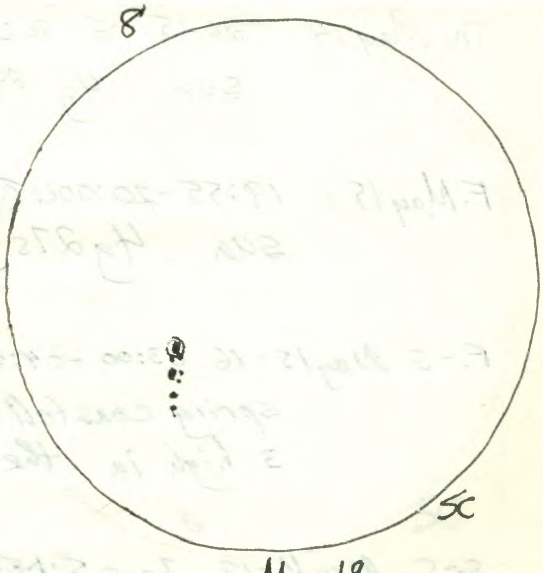
4g
25S
RSN65

May 17
19:45-19:50 UT



1g
6S
RSN16

May 18.
19:35-19:40 UT



1g
8S
RSN18

May 19
20:15-20:20 UT

1998

only one or two stars because it was quite cloudy - far too cloudy to observe

Su. May 17 19:45-19:50 UT t C-8, 32, 28, 20, 15.5.
Sun 4g 25s RSN 65

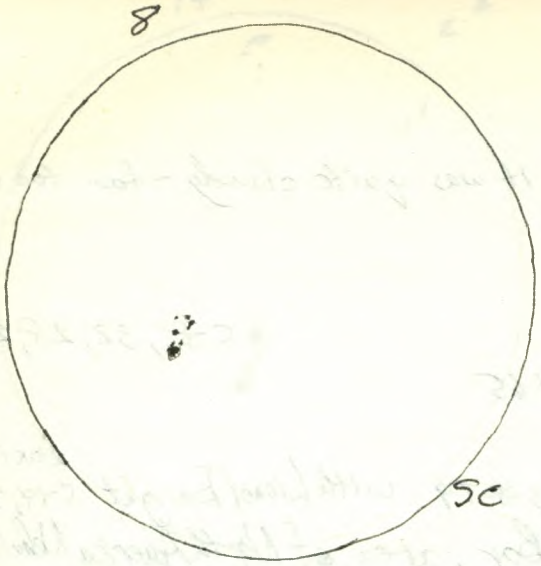
Su.-M. May 17-18 02:00-05:15 UT 00 S-8 T9 with Lionel Enright 20x100b C-14, 32, 19
20x100: M13, M27, T CorBor, area of North America Nebula
SN C-14: M96 in Leo with the recently discovered Supernova in the northern part of the galaxy - a SN that was as bright as, or almost as bright as, the whole galaxy. I learned of it from Skyline for May 15, 1998. - looked for, but was not sure of seeing, Comet Stonehouse which was about at R.A 13h 23m. Dec +44°.3, according to Skyline.
also M51 and nearby galaxy, Alcor and Mizar, M101, M65, M66, M13, M92, M57, BCyg.

M. May 18 19:35-19:40 UT t C-8, 32, 28, 20, 15.5
T.O.F.
Sun 1g 6s RSN 66

Tu. May 19 20:15-20:20 UT t C-8, 32, 28, 20, 15.5
T.O.F.
Sun 1g 8s RSN 18

F.-S. May 22-23 02:00-05:15 UT 00 S-8(?) T9 ne; 20x100b; C-14, 32
ne: constellations; 1 bright meteor
20x100b: area of Barnard's Star, T CorBor, area of Comet
? Comet Stonehouse Stonehouse, may have seen it, but not absolutely certain at the coordinates given on Skyline's Report, area near ζ Oph where Pluto is to be found; R Leonis.
C-14: M95 and M96; M96 had the bright (11 mag)
SN supernova - still very easily visible N. of the centre of the galaxy.

8

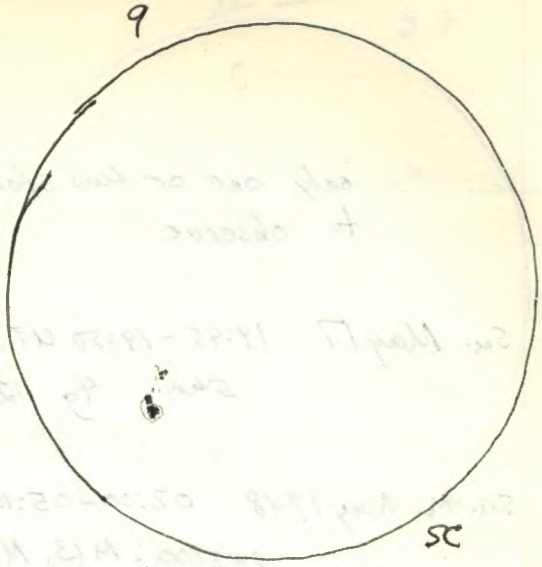


SC

1g
8s
RSN18

May 23
18:20-18:25 UT

9



SC

1g
9s
RSN19

May 24
19:20-19:25 UT

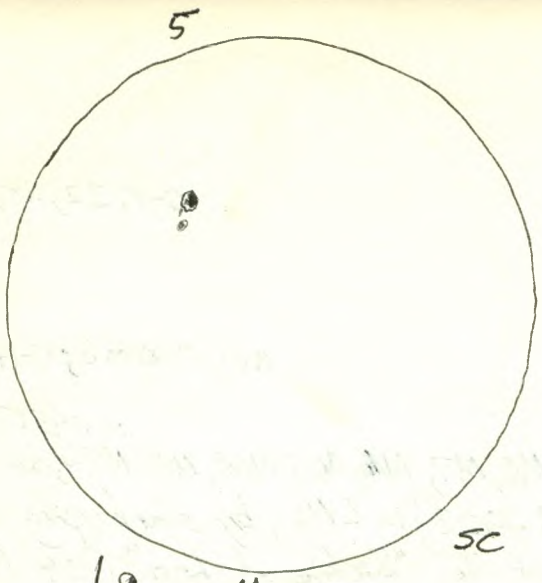
1998

Sa. May 23 18:20-18:25 UT t C-8, 32, 28, 20, 15.5.
Sun lg 8s RSN18

Sa.-Su. May 23-24 02:00-05:30 UT oo ne; 20x100b; C-14, 32.
ne: constellations
20x100b: R Leonis, M27, BCyg, M6, M7, M6, M17, M18, M10, M12, area of λ NGC4517 in Vir.
51(3003) C-14: Finest NGC #51 (NGC 3003) in LMi, by star hopping from α Lyncis which is N. of the "Sickle of Leo" (C4) (U103 to U104) at R.A. 9h 48.4m Dec. +33°25' and at mag 11.7 - quite faint and elongated
53(3432) Finest NGC #53 (NGC3003) in LMi, by star hopping N. from 46 UM and 46 LM (See U105) faint and flat - nearly edge on, but not as faint as the precious object - mag. 11.3 at R.A. 10h52.m5, Dec +36°3'
79(4517) Finest NGC #79 (4517), very long, thin galaxy with star nearby at Mag. 10.5 at R.A. 12h 32.m8, Dec. 00°07' (See U238 or U239). I star-hopped to from γ Vir on U239 at first, and then "star-hopped" from η Vir on U238
Some Aurora. Excellent skies! An auroral glow persisted in the N. throughout the observing session.

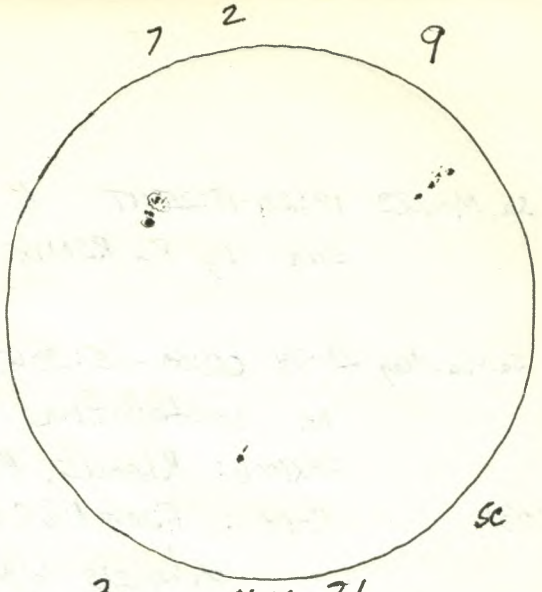
Su. May 24 19:20-19:25 UT t C-8, 32, 28, 20, 15.5
Sun lg 9s RSN19 T.O.F.

Th.-F. May 28-29 08:10-08:25 UT y twl ne; 10x25b
M.
ne: some bright stars, Jupiter well up in SE, Venus low in E, about 1° above trees across lake
10x25b: Venus low in E; looked for Saturn near it but did not see it. There may have been some cloud or haze preventing my seeing it. Saturn and Venus were supposed to have been a mere 0.°5 apart. (See Astronomy, May 1998, p. 68.)



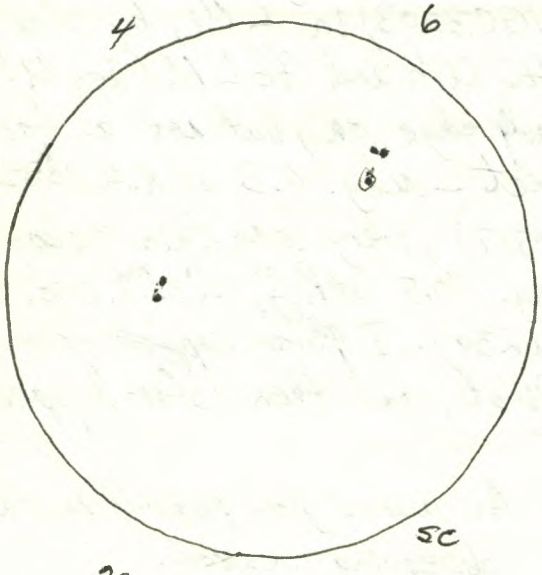
1 g
5 s
RSN 15

May 30
18:45-18:50 UT



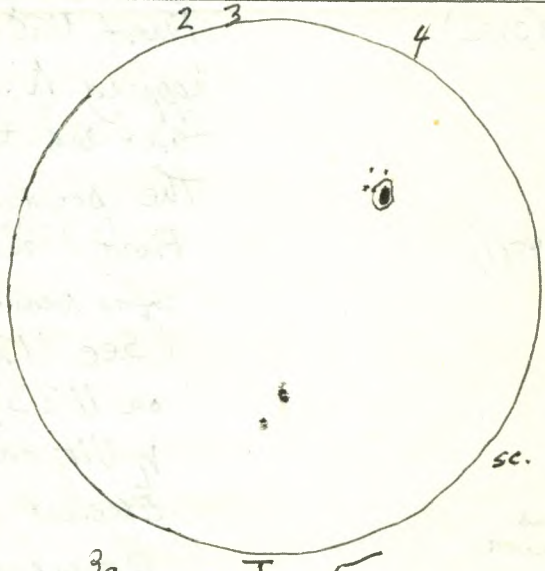
3 g
18 s
RSN 48

May 31
20:20-20:25 UT



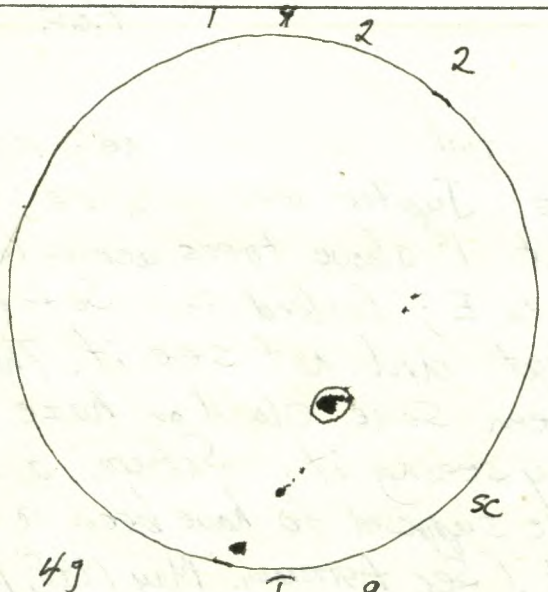
2 g
10 s
RSN 30

June 1
21:20-21:25 UT



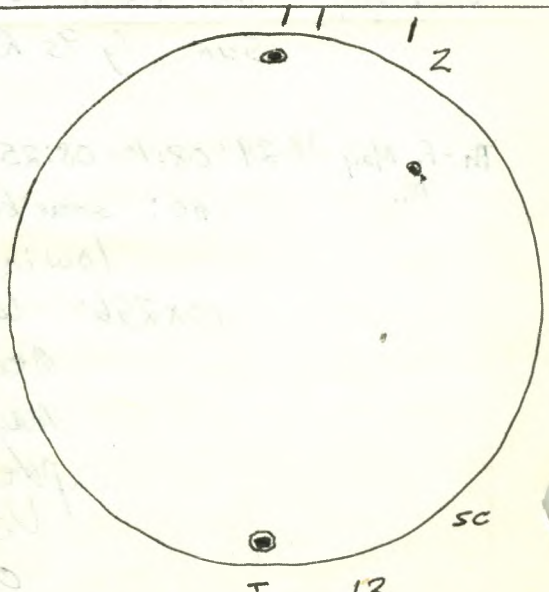
3 g
9 s
RSN 39

June 5
20:15-20:20 UT



4 g
9 s
RSN 49

June 9
19:25-19:30 UT



4 g
5 s
RSN 45

June 13
20:20-20:25 UT

1998

Sa. May 30 18:45-18:50 UT t C-8, 32, 28, 20, 15.5
sun 1g 5s RSN15 T.O.F.

Su. May 31 20:20-20:25 UT t C-8, 32, 28, 20, 15.5
sun 3g 18s RSN48 T.O.F.

M. June 1 21:20-21:25 UT t C-8, 32, 28, 20, 15.5
sun 2g 10s RSN30 T.O.F.

F. June 5 20:15-20:20 UT t C-8, 32, 28, 20, 15.5
sun 3g 9s RSN39 T.O.F.

Tu. June 9 19:25-19:30 UT t C-8, 32, 28, 20, 15.5
Sun 4g 9s RSN49 T.O.F.

Sa. June 13 20:20-20:25 UT t C-8, 32, 28, 20, 15.5
sun 4g 5s RSN45 T.O.F.

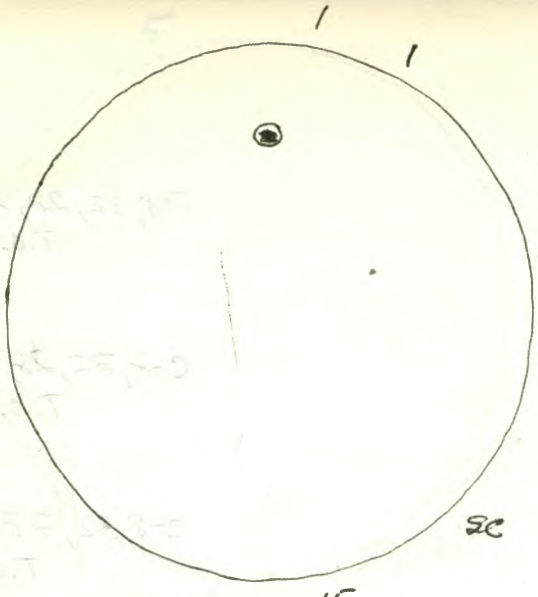
M. June 15 20:15-20:20 UT t C-8, 32, 28, 20, 15.5
sun 2g 2s RSN22 T.O.F.

Th. June 18 19:35-19:40 UT t C-8, 32, 24, 20, 15.5
sun 2g 2s RSN22 T.O.F.

Th.-F. June 18-19 02:05-02:10 UT y twl ne
- brightest stars in twilight; a bright satellite going from N to S. near Arcturus

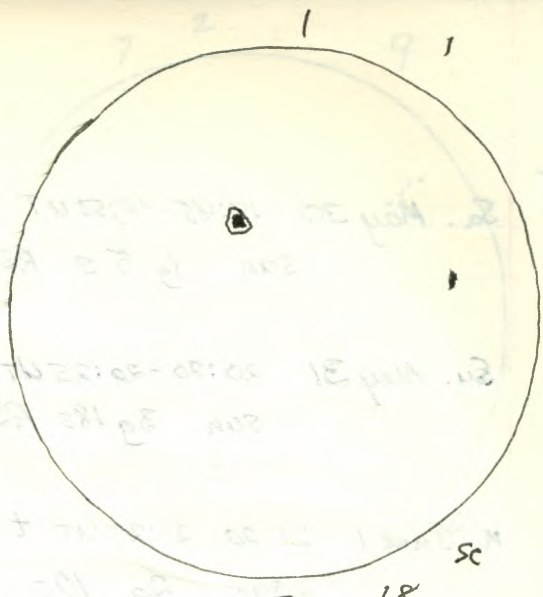
F. June 19 21:20-21:25 UT t C-8, 32, 28, 20, 15.5
sun 2g 10s RSN30 T.O.F.

F.-S. June 19-20 03:30-04:50 UT y S-7-8(?)T9 ne
- observed late spring and summer constellations while reclining near the observatory. - one meteor - possibly mag. -2; one "star" near Arcturus and about 3° east of it appeared



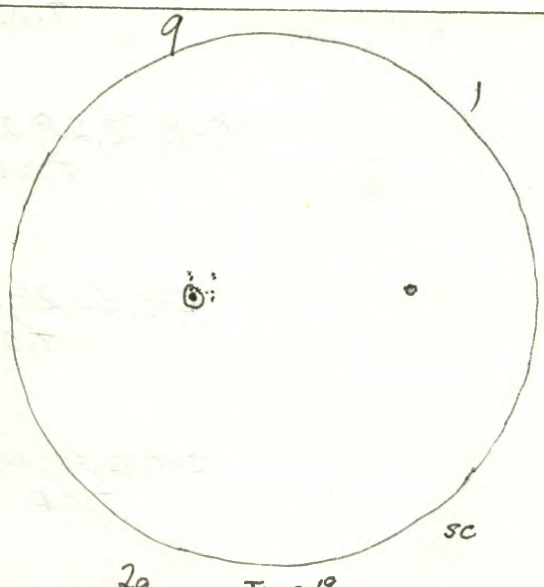
2g
2s
RSN22

June 15
20:15-20:20 UT



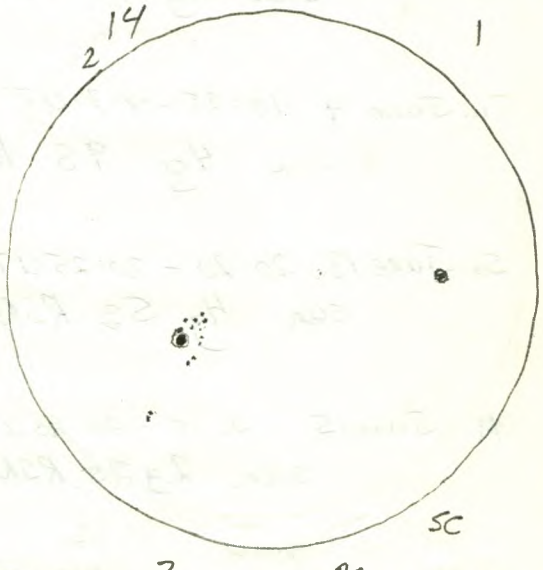
2g
2s
RSN22

June 18
19:35-19:40 UT



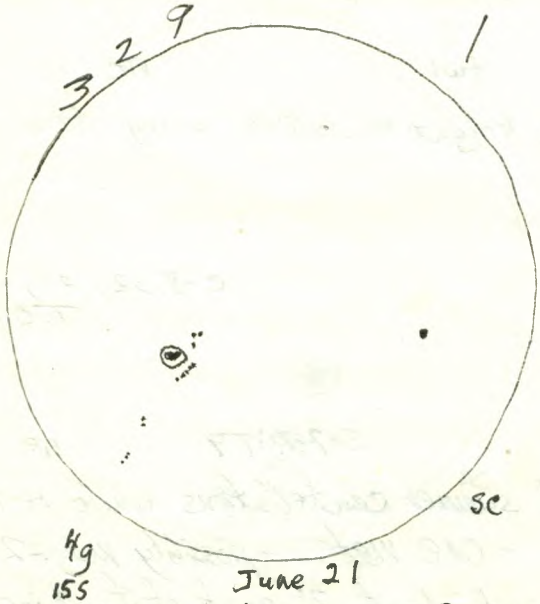
2g
10s
RSN30

June 19
21:20-21:25 UT



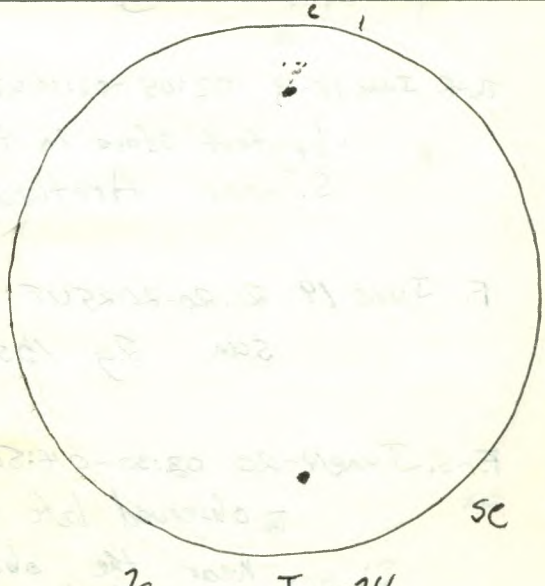
3g
17s
RSN47

June 20
18:45-18:50 UT



4g
15s
RSN55

June 21
19:20-19:25 UT



2g
7s
RSN27

June 24
19:25-19:30 UT

1998

very bright for a few seconds - possibly 10 seconds after I first saw it. It may have been a "point-meteor". Glow in the N. throughout the observing session - up about 20° - possibly Aurora.

Sa. June 20 18:45-18:50 UT t C-8, 32, 28, 20, 15.5
Sun 3g 17s RSN 47 T.O.F.

Sa.-Su. June 20-21 03:30-04:50 UT y S-7 8 T 9 ne
- Reclining on chaise near observatory, I observed summer constellations and stars

Su. June 21 19:20-19:25 UT t C-8, 32, 28, 20, 15.5
Sun 4g 15s RSN 55

W. June 24 19:25-19:30 UT t C-8, 32, 28, 20, 15.5
Sun 2g 7s RSN 27 T.O.F.

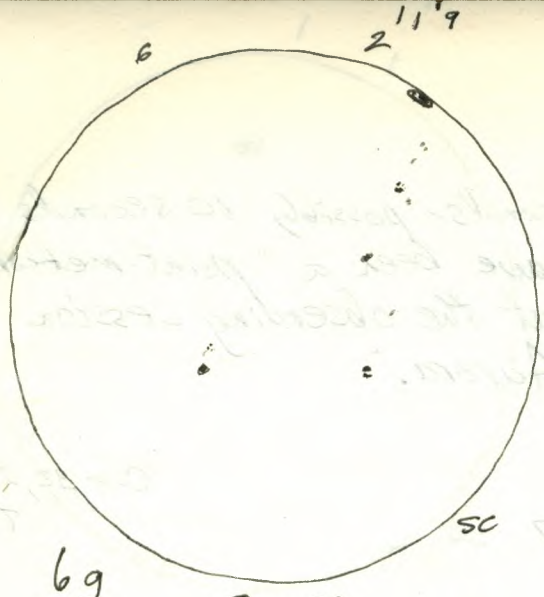
M. June 29 21:25-21:30 UT t. C-8, 32, 28, 20, 15.5
Sun 6g 20s RSN 80 T.O.F.

Th. July 2 20:10-20:15 UT t C-8, 32, 28, 20, 15.5
Sun 8g 12s RSN 92 T.O.F.

Th.-F. July 2-3 03:45-04:55 UT y fgml ne
- Reclining on lawn chaise near the observatory and facing ESE I observed spring and summer constellations and stars. There was one bright meteor - about mag. 2 high in the sky going S to N. about mid-way during the observing session.

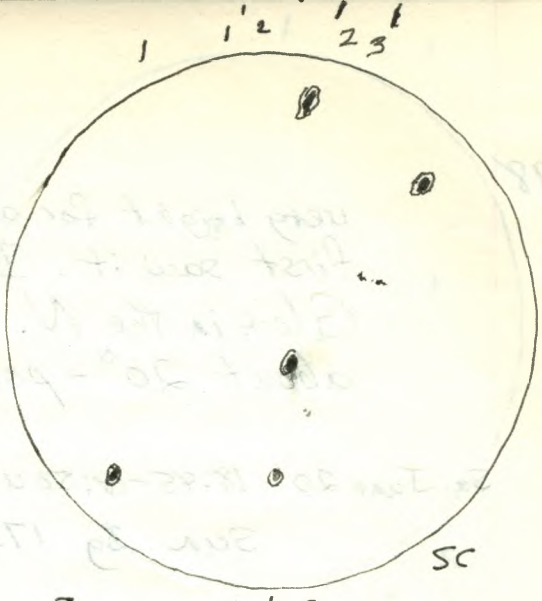
F. July 3 19:55-20:00 UT t C-8, 32, 28, 20, 15.5
Sun 7g 18s RSN 88 T.O.F.

Su. July 5 18:15-18:20 UT t C-8, 32, 28, 20, 15.5
Sun 5g 9s RSN 59 T.O.F.



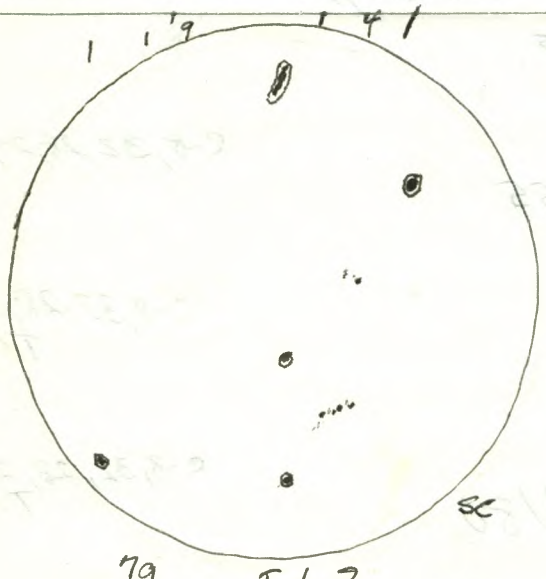
6g
20s
RSN 80

June 29
21:25-21:30 UT



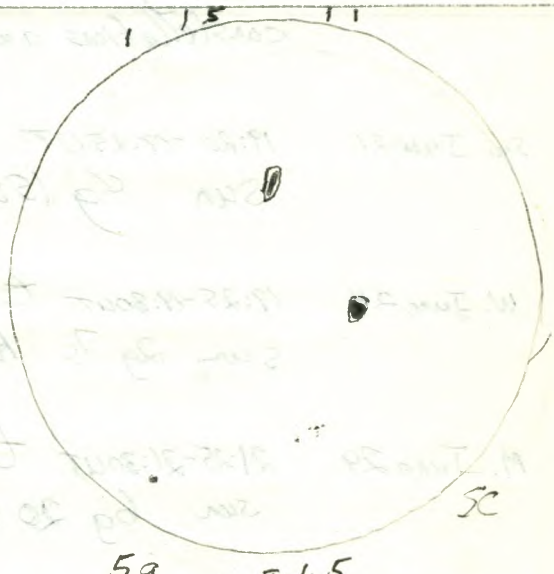
8g
12s
RSN ~~82~~ 92

July 2
20:10-20:15 UT



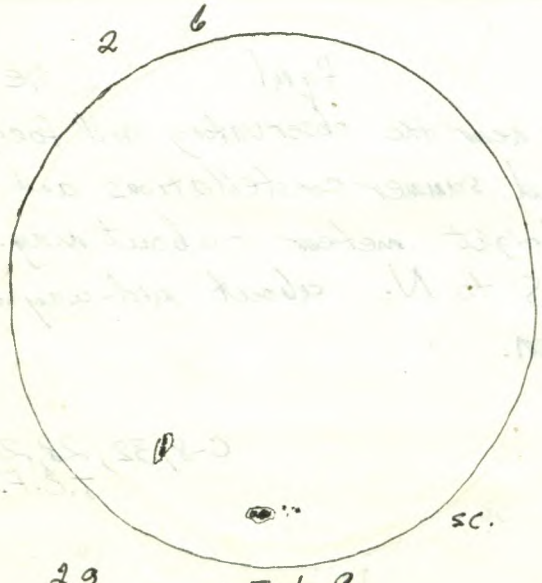
7g
18s
RSN 88

July 3
19:55-20:00 UT



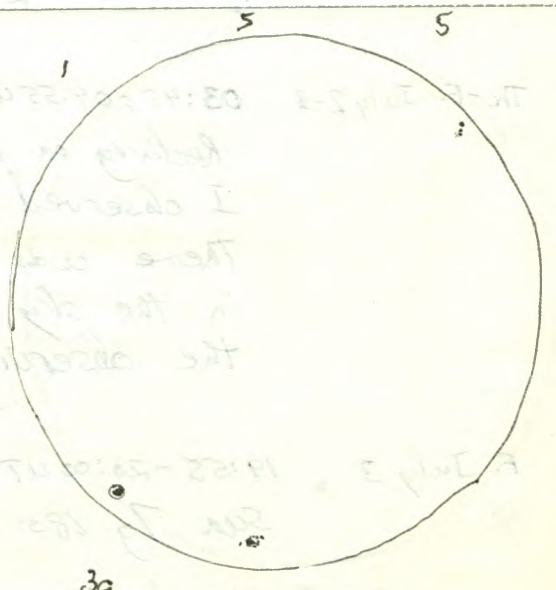
5g
9s
RSN 59

July 5
18:15-18:20 UT



2g
8s
RSN 28

July 9
21:20-21:25 UT.



3g
11s
RSN 41

July 10
20:30-20:40 UT

1998

Th. July 9 21:20-21:25 UT t C-8, 32, 28, 20, 15.5
sun 2g 8s RSN28 T.O.F.

F. July 10 20:30-20:40 UT t C-8, 32, 28, 20, 15.5
sun 3g 11s RSN41 T.O.F.

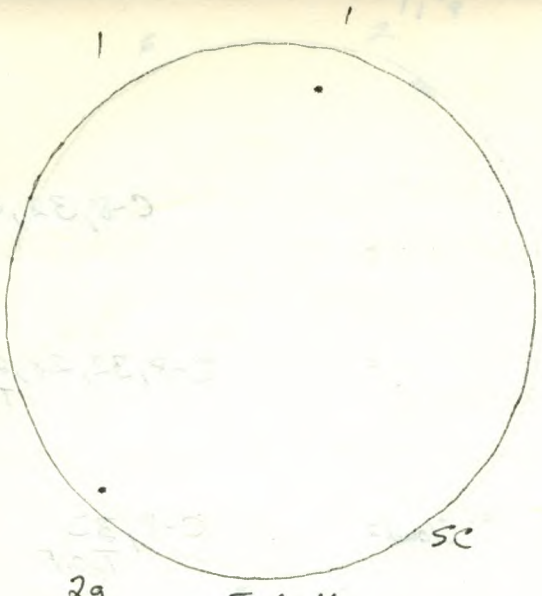
Sa. July 11 18:35-18:40 UT t Clouds C-8, 32
sun 2g 2s RSN22 T.O.F

Su. July 12 16:50-16:55 UT t C-8, 32, 28, 20, 15.5
sun 3g 10s RSN40 T.O.F.

S.-M. July 12-13 01:30-03:30 UT y twl and bright gml ne and 9x63b.
ne: spring and ~~winter~~ summer constellations; probably one "Perseid-type" meteor almost in the zenith, NE to SW.
Reclining on chaise and sitting, I observed as stars appeared in twilight and during moonrise (at 02:50 UT) and after but clouds began to be a problem after moonrise, and the combined problem of bright moonlight and considerable cloud cover meant that then not too many stars could be seen. Variables Bkyrae, Aller, and δCep seemed to be near minimum.
9x63b: areas in Lyra and Cygnus - near PCygni, area in Cepheus - near δCephei, M22, M13, M8, area in Scorpius, areas in Hercules and Ophiuchus, area in Cassiopeia near βCas.

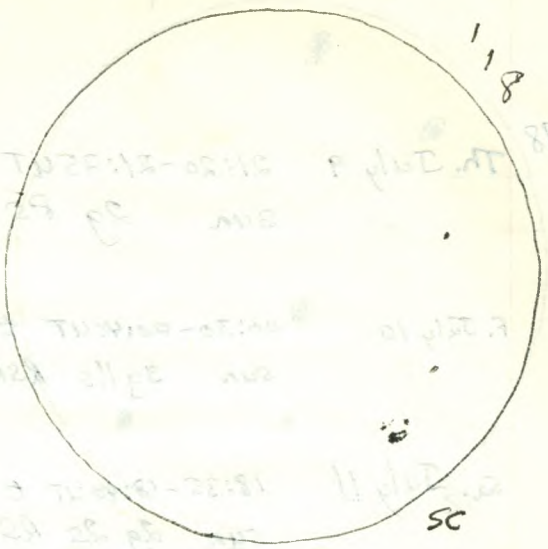
M. July 13 21:05-21:10 UT t C-8, 32, 28, 20, 15.5
sun 2g 9s RSN29 T.O.F.

M.-Tu. July 13-14 02:30-04:30 UT y twl, darksky, bright gml ne and 9x63b
ne: spring and summer constellations; possibly 2 "point meteors which I thought appeared near α Cep and in the NE part of Cygnus.
Reclining on chaise and sitting I observed during the latter part of astronomical twilight and



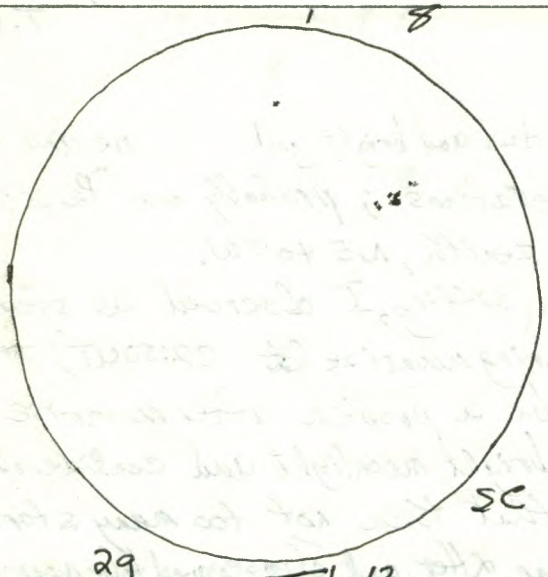
2g
2s
RSN22

July 11
18:35-18:40 UT



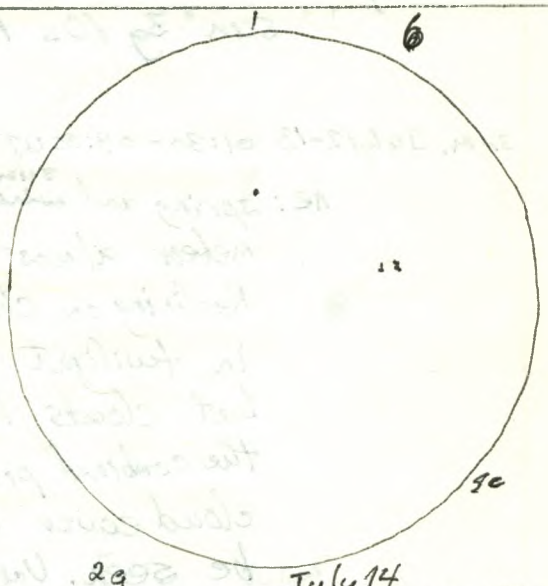
3g
10s
RSN40

July 12
16:50-16:55 UT



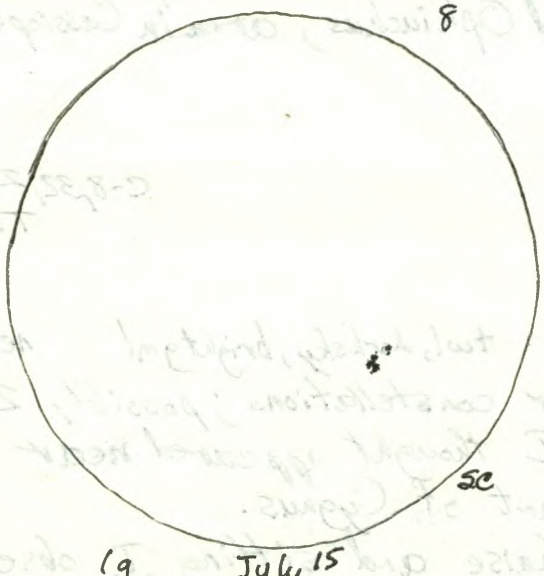
2g
9s
RSN29

July 13
21:05-21:10 UT



2g
8s
RSN28

July 14
21:00-21:05 UT



1g
8s
RSN18

July 15
20:00-20:05 UT

for a period of about 16 min. between the end of twilight and moonrise (03:08 UT to 03:24 UT) when the dark sky had excellent transparency, and after the bright gibbous moon rose when the sky was considerably washed out.

9x63b : areas in Cygnus near "North America Nebula" and P Cyg area, M22, M13, M8, area of M20 and M21, area in upper part of Ophiuchus near β and γ Ophiuchi, IC 4665, M11 and area in Scutum.

Tu. July 14 20:00 - 21:05 UT t C-8, 32, 28, 20, 15.5
Sun 2g 7s RSN 27 T.O.F.

Tu.-W. July 14-15 02:45 - 04:15 UT y twl; dark sky (S-8? T9); gml ne and 9x63b

ne: summer constellations

Reclining on chaise and sitting, I observed before and after the end of astronomical twilight, and after the bright gibbous moon rose at 03:56 UT. Conditions were very good during the "dark sky" period.

9x63b : areas in Cygnus near Deneb and γ Cygni, M22, M8, area of M20 and M21, M11 and its area, M13, area of δ Cyg which seemed brighter than the previous night, IC 4665, area of M15 in Peg., area of U and EU Del in Delphinus, areas of Lyra and Sagitta, M6, M7.

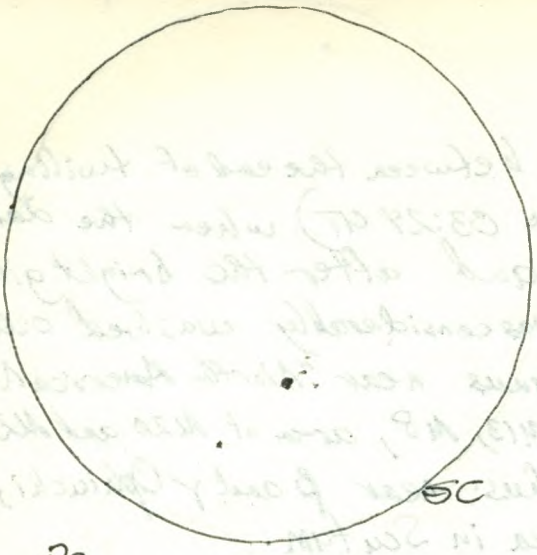
W. July 15 20:00 - 20:05 UT ~~f~~ t C-8, 32, 28, 20, 15.5
Sun 1g 8s RSN 18 T.O.F.

W.-Th. July 15-16 02:30 - 04:50 UT twl; dark sky (S-8? T7 haze) gml ne and 9x63b

ne: summer constellations

Reclining on chaise and sitting, I observed during twilight, after twilight ended (i.e. from 03:05 to 04:28) until moonrise, and after the moon (gibbous, but only about 11 hours from Third Quarter rose). Conditions were not very good during the

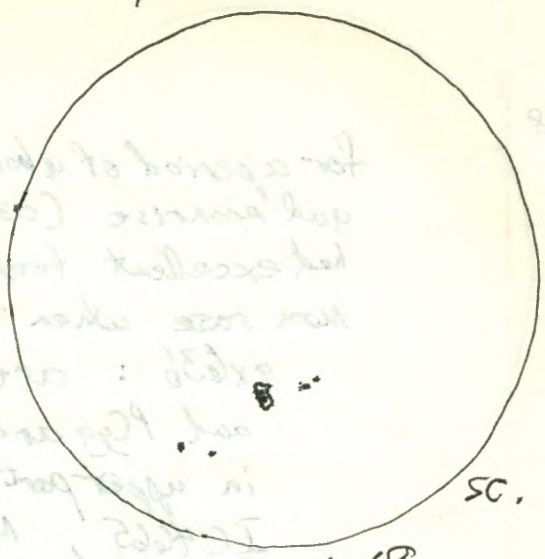
1 4



29
55
RSN25

July 17
21:55-22:00 UT

1 1 6



39
85
RSN38

July 18
20:40-20:45 UT

1998

"dark sky" period. There was considerable haze after about 3 consecutive days of 'air quality advisories' issued by Environment Canada. Near the zenith stars to 5½ magnitude or beyond could be seen, but lower in the sky, especially in the South, probably only stars to about 3rd magnitude could be seen.

Aurora — An Aurora was seen through most of the observing session. At first it was a glow up about 20° and about 50°-60° wide. Later, about Midnight it became slightly active with "patches" up to the zenith and beyond for a period of 10 or 15 minutes. After that it was a fairly intense arc from NW. to NE and up about 40° with a darker area under it. The colour was mainly white with some hints of red in the ENE. Some brightness in the yard could be detected as a result of the Aurora. The sky was washed out, it appeared, more from the Aurora than from the moon which rose, as stated above, at 04:28 UT.

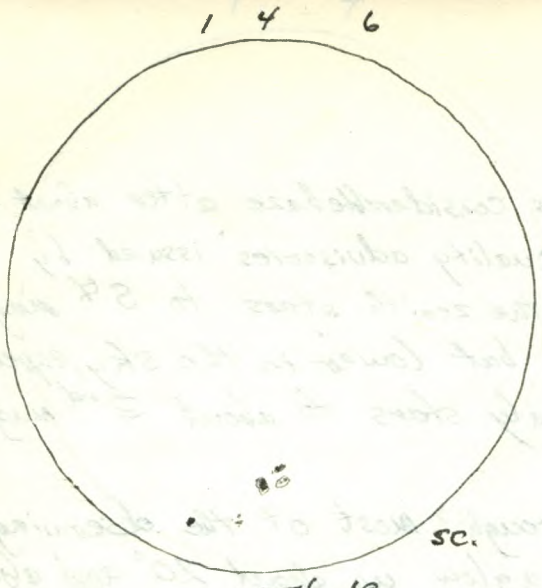
9x63b: area of δ Cep, which appeared brighter than the previous night and was probably near Max. −3.5, β Lyr and area, the star also being brighter probably than the previous night, areas in Cygnus, areas near U and EU Del in Delphinus.

F. July 17 21:55-22:00 UT t C-8, 32.
Sun 2g 5s RSN 25 — long wait because of T.O.F. clouds.

Sa. July 18 20:40-20:45 UT t C-8, 32, 28, 20, 15.5
Sun 3g 8s RSN 38 T.O.F.

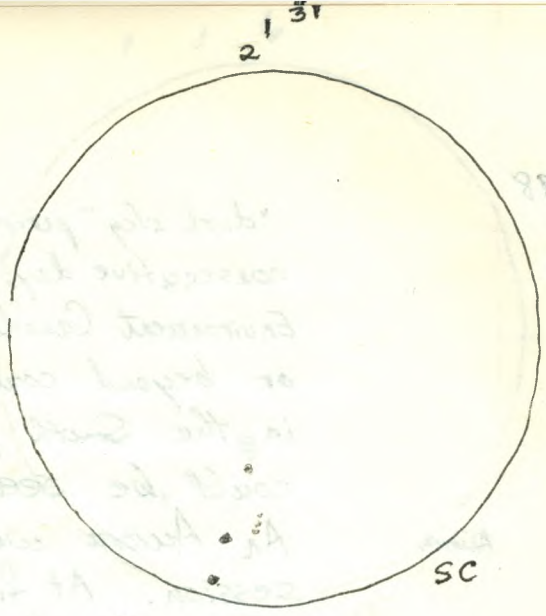
F.-S. July 17-18 02:30-03:45 UT y S-8(?)T-9 when clear ne
On chaise I reclined and sat to observe the summer constellations amid both cloudy and clear skies. I noted the variables β Lyrae and δ Cephei

S.-S. July 18-19 03:00-04:45 UT S-8(?)T 9.5! ne
With the end of astronomical twilight being at



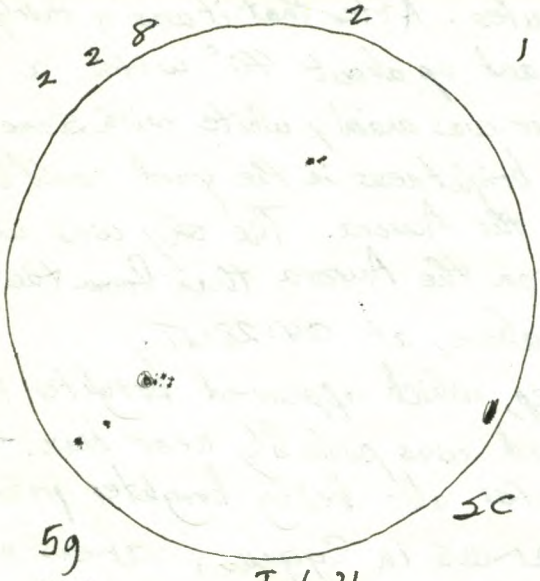
3g
11 S
RSN41

~~July~~ 19
19:10-19:15 UT



4g
7S
RSN47

July 20
20:55 – 21:00 UT



5g
15 S
RSN 65

July 21
17:20-17:25 UT

1998

03:00, My observing session was entirely during the "dark skies" part of the night. I observed summer constellations, seeing stars probably to 6th magnitude. I paid especial attention to stars in Cygnus, near γ Cygni and 61 Cygni. I also observed stars in Cepheus in the area of ε Cep to μ Cep, and I noted the variables βLyrae and δCephei, the latter of which was probably near its maximum. By the end of the session, Jupiter was up about 10° in the SE. and very bright

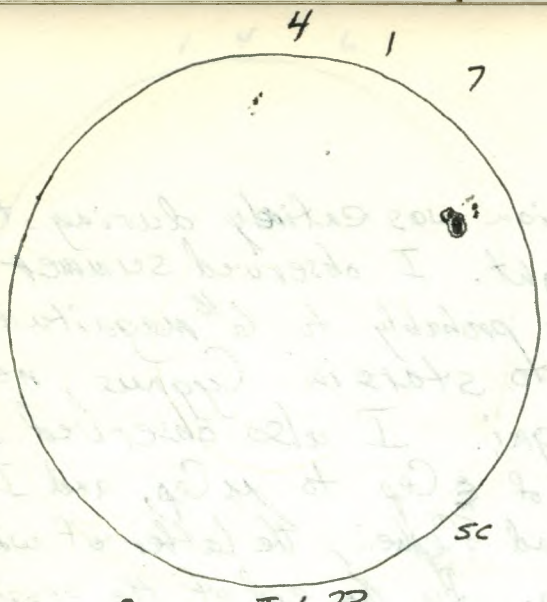
Su. July 19 19:10-19:15 UT t C-8,32,28,20,15.5
sua 3g 11s RSN41 T.O.F.

M. July 20 20:55-21:00 UT t C-8,32,28,20,15.5
sua 4g 7s RSN47 T.O.F.

M.-Tu. July 20-21 02:50-04:45 UT y S 8?) T 6-8 haze, cloud ne; 9x63b.
ne.: Reclining and sitting on the chaise, I observed summer stars and constellations. - One bright meteor (+2 mag. or so) from SE, possibly from Aquarius and a member of S. δ Aquarids + to peak on Aug. 29. - Also a bright red "star-like" object in Ophiuchus - possibly a bright point-meteor - possibly mag. 0.
9x63b.: areas of Cygnus, Lyra, Cassiopeia, and Cepheus, M22, M13, area near U and ε U Delphini.

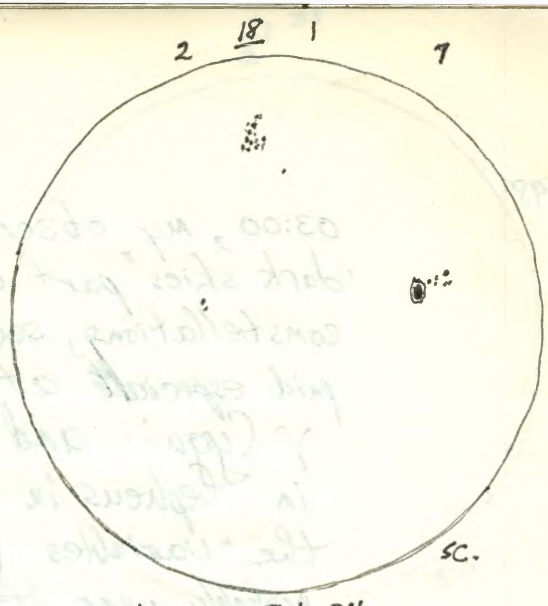
Tu. July 21 17:20-17:25 UT t C-8,32,28,20,15.5
sua 5g 15s RSN65 T.O.F.

~~W~~-Th July 22-23 03:00-04:50 UT y S-8?) T8-9, thin cloudy ne; 9x63b.
ne.: Reclining on chaise I observed summer stars and constellations. - βLyrae probably at or near maximum.
9x63b: areas of Cygnus, Scutum, Ophiuchus - IC 4665 area.
Aurora During the session there was an Aurora glow in the N. For a while around 4:00 hours UT the



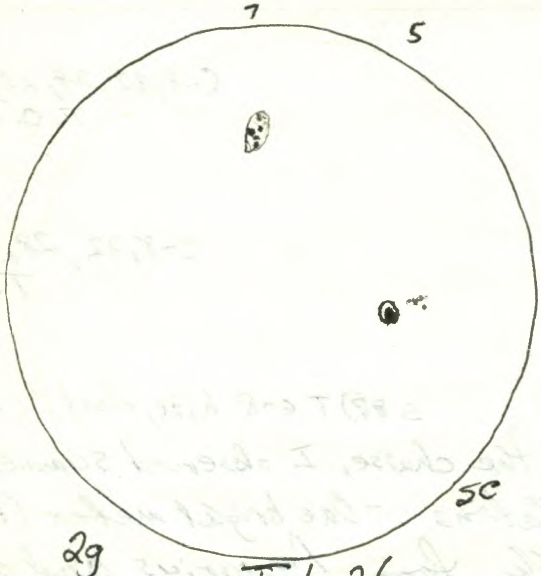
3g
12s
RSN42

July 23
20:45-20:50 UT



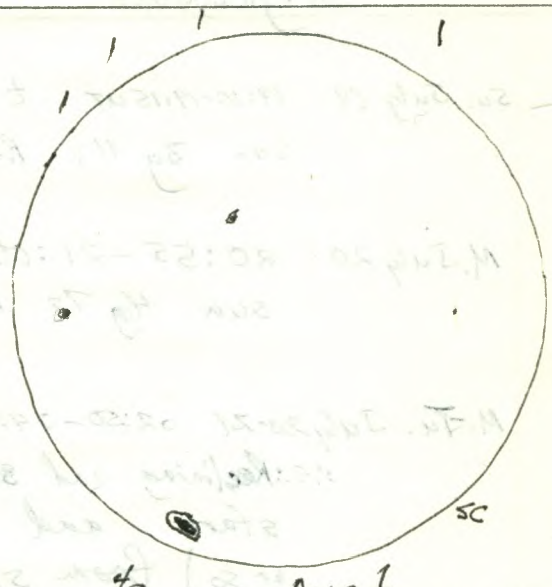
4g
28s
RSN68

July 24
21:05-21:10 UT



2g
12s
RSN32

July 26
19:35-19:40 UT



4g
4s
RSN44

Aug. 1
21:15-21:20 UT

1998.

glow became a more active Aurora with bands, perhaps 2° wide extending upwards about 40°. There was some hint of reddish colour in the bands. Later, it seemed to be less active but the glow remained.

Th. July 23 20:45 -20:50 UT t C-8, 32, 28, 20, 15.5
Sun 3g 12s RSN 42

Th.-F. July 23-24 03:45-06:00 UT y S-8(?) T 9.5! ne ; 20x100 b.
ne: Sitting in lawn chair I observed summer constellations and stars. There were 2 or 3 meteors, not spectacular.
Aurora Transparency was superb. Auroral glow continued throughout the session in N., at times brighter than others. 51 Peg with averted vision. - tried for M13.
20x100b: R Cor Bor T Cor Bor, M8, M20, M21, M16, M17, M18, M22, M23, M24, M25, Uranus and Neptune (from map on p. 96 of May 1998, Sky and Telescope) M31, M32, M110, M33, M15

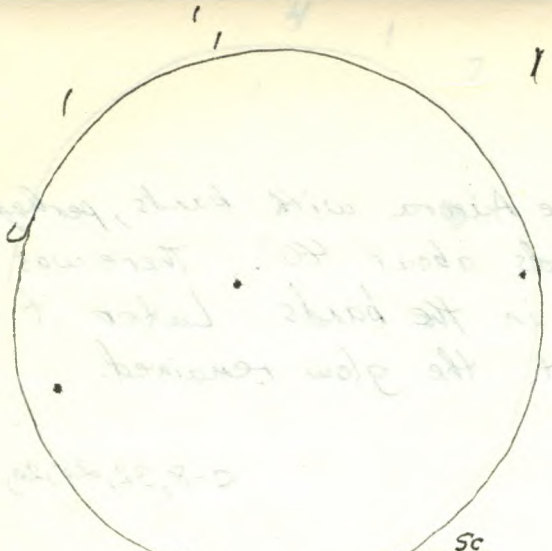
F. July 24 21:05 -21:10 UT t C-8, 32, 28, 20, 15.5
Sun 4g 28s RSN 68 T.O.F.

F.-S. July 24-25 04:00-04:50 UT y S8(?) T6-8 (cloud) ne.
Sitting near the observatory, I observed summer stars and constellations, but clouds were a serious problem, generally covering half or more than half of the sky.

Su. July 26 19:35-19:40 UT t C-8, 32, 28, 20, 15.5
Sun 2g 12s RSN 32 T.O.F.

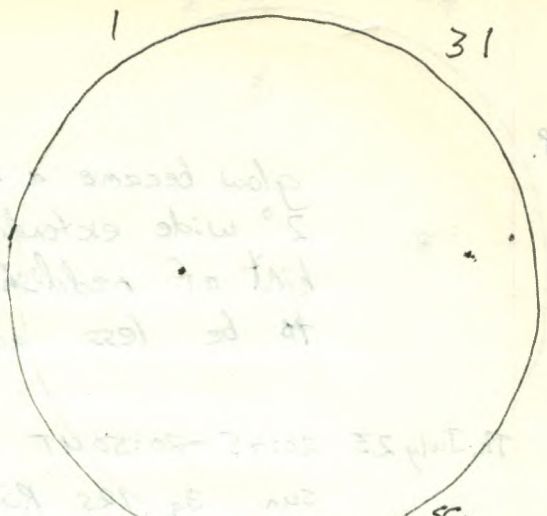
F.-S. July 31-Aug. 1 - 03:30-03:40 UT y gml ne
summer stars and constellations; Moon in SW in Libra.

Sa. Aug. 1 21:15-21:20 UT t C-8, 32, 28, 20, 15.5
Sun 4g 4s RSN 44 T.O.F.



4g
4s
RSN44

Aug. 2
20:25-20:30



3g
5s
RSN35

Aug. 3
19:20-19:25 UT

1998

Sa.-Su. Aug. 1-2 02:30-06:30 Blue Skies Music Festival, Clarendon gml; afternoonset: 5.8?79 ne; Ast, 21,8 28, λ

ne: constellations, pointing out stars such as βPer, βLyr, δCep. a few meteors.

Ast: lunar craters, Alcor and Mizar, M31, Jupiter and its 4 moons - with movement of one of them detectable over the time they were observed.

Many people, perhaps 100 or more of 1000 to 1500 who were present (quite likely), came to observe where Denise and I had set up on "the hill" area which was "at the back" of the hillside near the stage on which the concert was taking place. Denise used 10X50 binoculars and also talked to people about the night sky. I had already given a talk "near the Tipi" (one of 6 or 7 areas where talks were given) about the summer sky. It had been at 10:00 a.m. After that and after hearing another talk at the same site we returned home and went back in the evening after sunset for the "evening session.

Su. Aug. 2 20:25-20:30 UT t C-8, 32, 28, 20, 15.5
sun 4g 4s RSN 44 T.O.F.

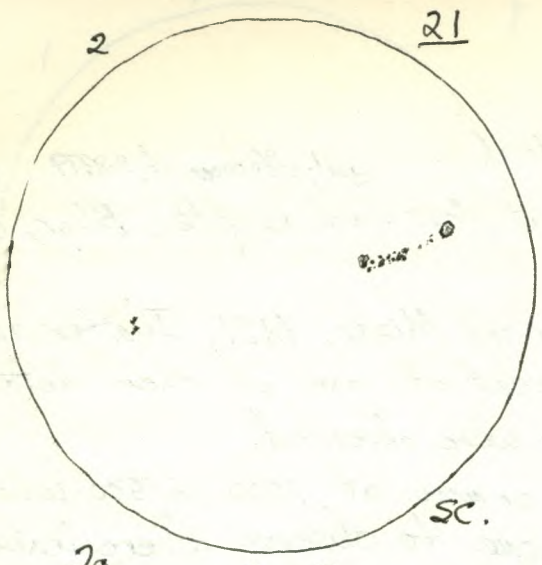
S.-M. Aug. 2-3 02:30-03:45 UT y gml ne

On the lawn chaise I observed the bright summer stars and the gibbous moon, but did not see any Perseid Meteors.

M. Aug. 3 19:20-19:25 UT t C-8, 32, 28, 20, 15.5
sun 3g 5s RSN 35

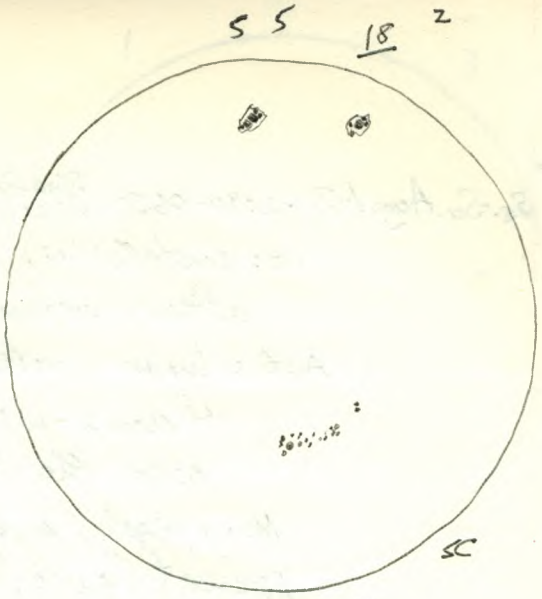
M.-T. Aug. 3-4 02:30-03:40 UT y gml, ~~scattered~~ cloud ne
summer stars and constellations - what could be seen among cloud

T.-W. Aug. 4-5 04:00-04:20 UT nd gml/y scattered cloud ne
summer stars and constellations - what could be seen among clouds



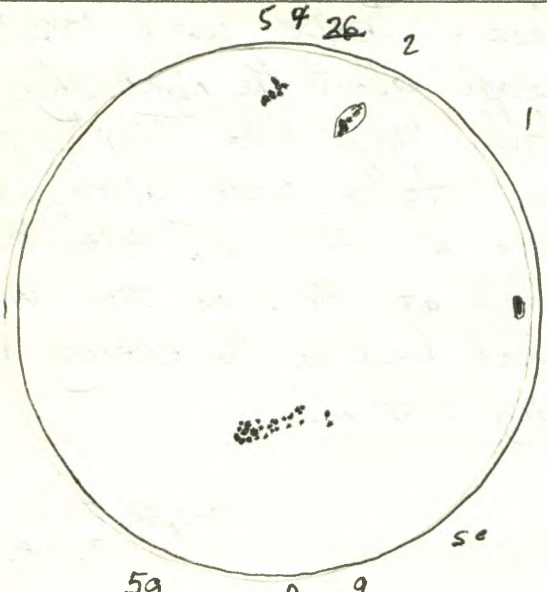
2g
23S
RSN43

Aug. 5
20:25-20:30UT



4g
30S
RSN70

Aug. 8,
20: 40-20:45UT



5g
38S
RSN88

Aug. 9
18: 40-18:45UT

1998 W. Aug. 5 20:25-20:30 UT t C-8,32
sun 2g 23s RSN43 T.O.F.

W.-Th. Aug. 5-6 02:10-03:00 UT y T2 - about 95% overcast ne
- observed hoping to see a meteor or two among the small breaks in the cloud cover.

Sa. Aug. 8 20:40-20:45 UT t C-8,32,28,20,15.5
sun 4g 30s RSN70 T.O.F.

Sa.-Su. Aug. 8-9 05:00-05:10 UT t bright gml C-8,32,28,20,15.5.
Jupiter and its 4 moons - bands quite clearly visible; lunar maria and craters - the moon being very bright since it was just over 1 day past Full Moon.
- observed with Denise.

Su. Aug. 9. 18:40-18:45 UT t C-8,32,28,20,15.5.
sun 5g 38s RSN88 T.O.F.

Tu.-W. Aug. 11-12 02:15-02:40 UT y S(?)T8-9 ne. I
- looking for meteors, but saw very little activity from Perseids
- Janice Enright, a friend of hers, Christine, and Jonathon were here. They observed a little.
- There were only 16 minutes between end of ast. twilight locally and moonrise at 02:31 UT.

W.-Th. Aug. 12-13 02:00-03:40 UT y S8(?)T8-9. ne. I
- Reclining on chaise, I observed Perseids. Denise, Peter, Jonathon, Janice and Christine, a friend of Janices, also observed. For about the first hour some of them observed 10 to 15 meteors. I observed only one bright Perseid (in or near UMa, and about mag. 1) and a few faint ones. I was disappointed at the number of bright ones. According to the O.H., the peak was at 0h UT, only about 2 hours before I began observing.

1998

Th.-F. Aug. 13-14 02:15-03:40y S-7(?) T 9.5! ne

Sitting on a lawn chair and facing NNW and later facing SE, I observed Perseids. Though the time, according to the O.H., was not as near the peak as the previous night, I saw more bright Perseids, probably 6 or 7 that were 2nd mag or 3rd mag. or brighter and 2 or 3 left trains for a couple of seconds, or a second or so. Conditions were excellent; transparency was superb! I found the observing much better than the previous night.

Perseids

F.-S. Aug. 14-15 02:00-03:30UT y T6-8 ne with Peter and Denise

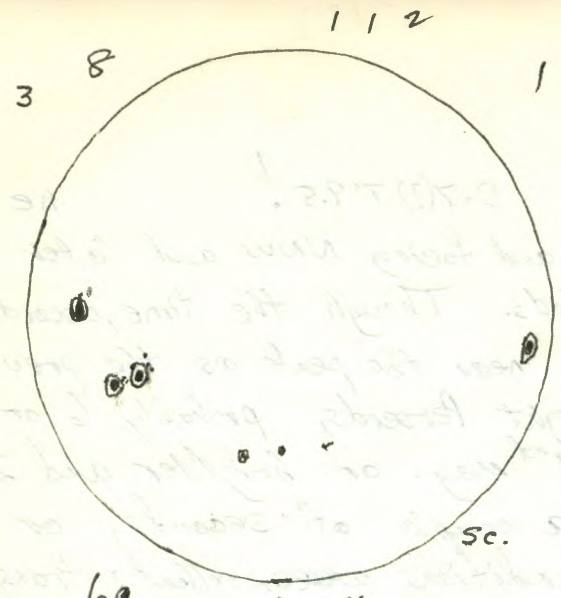
Although the sky was quite hazy and perhaps a bit cloudy I observed with Peter after we had spent a day working on rebuilding the outer part of the observatory's roof. There were very few meteors (Perseids or others) seen. I may have seen one or two indications of meteors because of a glow in the haze.

Of the 3 nights, Aug 12-13, 13-14, 14-15, the second proved to be by far the best because of the conditions.

For parts or all of 5 days I worked on the roof of the observatory.

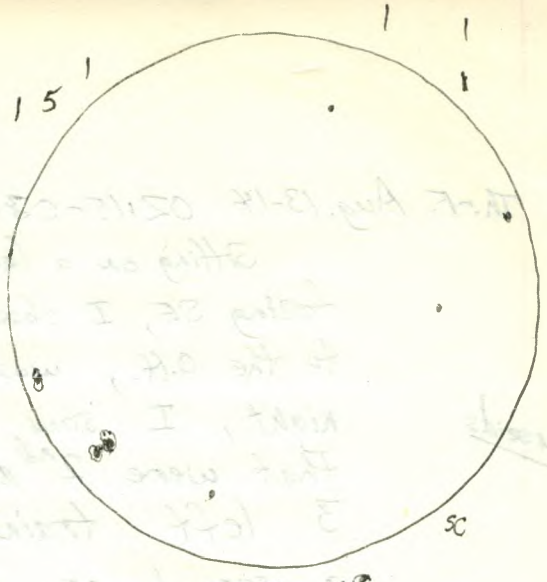
observatory roof repairs

Peter and Jonathon, Janice and her friend arrived on Tuesday Aug. 11. We worked some that day. Peter returned to Ottawa to take back the 8' fibreglass sheets and get 10' sheets. He returned on Wed. Aug. 12 with the 10' sheets. We worked Wed. Thu. and Friday. On Thu they returned to Ottawa and missed the "best Perseid-conditions" night of the week. On Friday, we also worked on the roof of the house, putting on a pail of tar. On Tue. and Wed. we had also worked on the dock. On Sat. Aug. 15, we also cut down a pine tree in the yard because it could possibly interfere with the septic system because



69
165
RSN 76

Aug. 16
20:20-20:25 UT



69
105
RSN 70

Aug. 18
20:30-20:35 UT

1998.

of its roots, and it could interfere with viewing the sky because it was becoming quite large. I intended to replace it with a smaller tree.

Su. Aug. 16 20:20 - 20:25 UT t — C-8, 32, 28, 20, 15.5 T.O.F.
sun 6 g 16 s RSN 76

S.-M. Aug. 16-17 01:30-03:20 UT and 03:55-04:20 UT y S8?T9-9.5! ne with Denise.

I put out the air mattress in the yard near the north deck so that Denise and I could lie on it to observe Perseids. The sky conditions were excellent with transparency superb at times. I saw one bright Perseid with a train - in Draco, and another one that was not as long or bright. There was a faint, slightly reddish glow in the N, perhaps an Aurora. There was also a possible "point meteor" in Hercules, near ζ Her. I expected to see a flash from an "Iridium satellite at 03:58 UT (11:58 p.m. E.D.T) about 10° above the W. horizon according to Terry Dickinson's column in The Toronto Star of Sun. Aug. 9., but I did not knowingly see it, though it may have been "behind a tree".

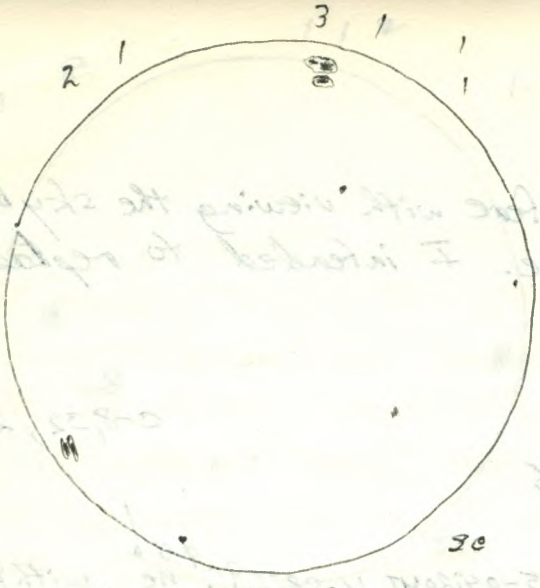
? Aurora.

"Iridium flash" not knowingly seen.

Tu. Aug. 18 20:30-20:35 UT t — C-8, 32, 28, 20, 15.5 T.O.F.
sun 6g 10s RSN 70

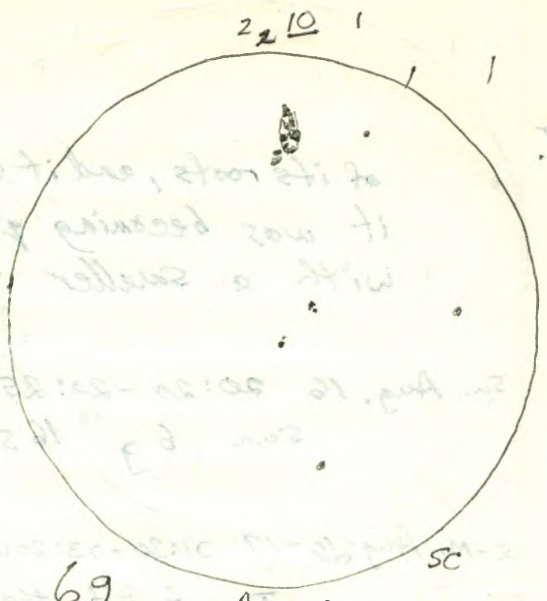
Tu.-W. Aug. 18-19 01:00-03:00 UT Long Bay Camp on Bob's Lake (Muslim Camp) S-8?T7-8 some cloud Ast, 28, 12, 8.

At Long Bay Camp where Muslims had a camp for children, I set up the Astroscan after attending part of an astronomy talk by David Stokes. I was there on his invitation. I observed and showed others Mizar, α CVn (Cor Caroli), β Cyg, and Jupiter, though clouds interfered with seeing objects in the SE where Jupiter was found. The campers came in groups. David Stokes had binoculars and Tom Dean had the 8"



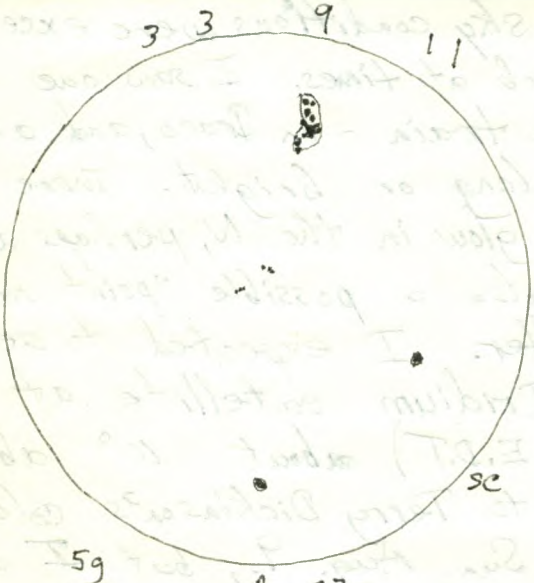
6g
9s
RSN69

Aug. 19
20:15-20:20UT



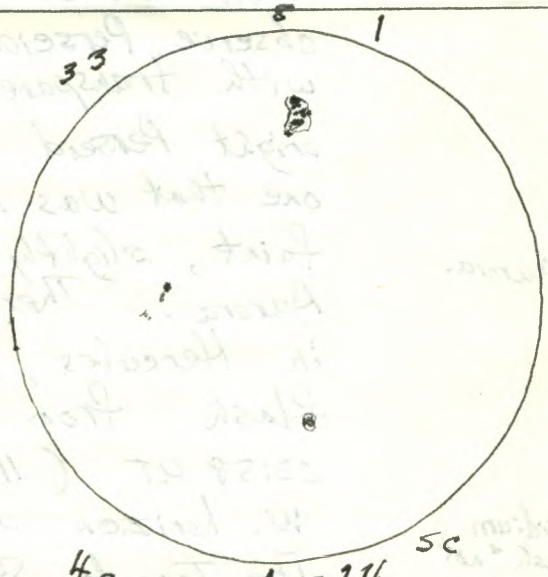
6g
17s
RSN77

Aug. 21
20:25-20:30UT



5g
17s
RSN67

Aug. 22
19:35-19:40UT



4g
15s
RSN55

Aug 24
21:25-21:30 UT

1988

Dobsonian owned by the Kingston Centre. At times clouds seriously hindered the observing. Murray Hogben, a columnist for The Whig-Standard was also present.

W. Aug. 19 20:15 - 20:20 UT t C-8, 32, 28, 20, 15.5
sua 6g 9s RSN69 T.O.F.

W.-Th. Aug. 19-20 02:20 - 03:15 UT y S 8(?) T 9 ne
I sat on the yard near the n. deck on a lawn chair observing the summer stars and constellations. Transparency was very good. There was one good Perseid meteor in Draco - about mag. 1 or 2 with a short-lived train.

F. ~~Aug.~~ 21 20:25 - 20:30 UT t C-8, 32, 28, 20, 15.5
sua 6g 17s RSN77 T.O.F.

F.-S. ~~Aug.~~ 21-22 01:00 - 03:50 UT with an intermission of about 30 min y C-8(?) T 9-9.5! ne
- summer stars and constellations - under very good conditions
- two or three meteors including two going in almost opposite directions within about a second or two of each other.

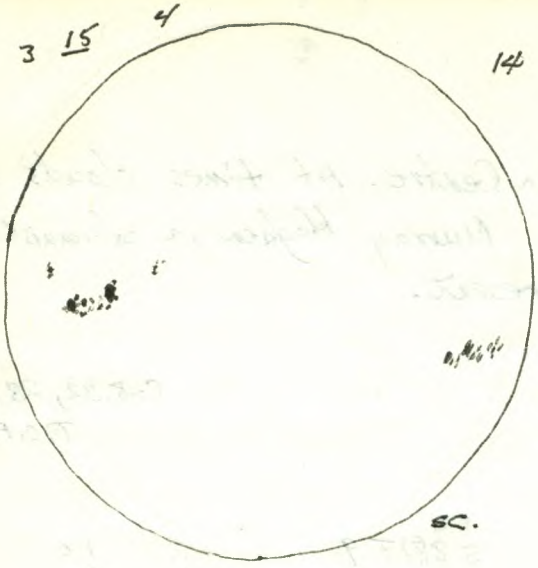
Sa. Aug. 22 19:35 - 19:40 UT t C-8, 32, 28, 20, 15.5
sua 5g 17s RSN67 T.O.F.

Sa.-Su. Aug. 22-23 ~~02~~:40 - 03:20 y S 8(?) T 6-7 (clouds) ne
- summer stars and constellations, in spite of considerable cloudiness, especially in the lower parts of the sky.

M. Aug. 24 21:25 - 21:30 UT t C-8, 32, 28, 20, 15.5
sua 4g 15s RSN55 T.O.F.

M.-T. Aug. 24-25 01:50 - 02:10 UT y and sh and dock S-6-T(?) T 9-9.5! ne
- observed summer stars and constellations, and from near the lake and dock, observed flashes of lightning in S. below the teapot of Sagittarius, and also along the S.

3 15 4 14

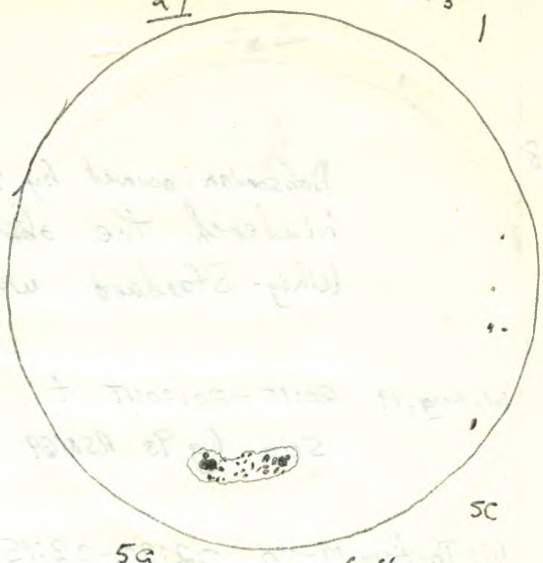


6C.

4g
36s
RSN 76

Aug. 30
17:10 - 17:15 UT

24 1 1 3 1



5C

5g
30s
RSN 80

Sept. 4
18:50 - 18:55 UT

1998

horizon toward SE and SW. I had received a phone call from someone in or near the village who had seen the lightning in the S. sky.

Th.-F. Aug. 27-28 01:40-02:40UT y s-s8(?)T 8-9 cm/in W. ne

With Denise I observed the N. sky for Aurora in view of the fact that Denise had seen a spectacularly active Aurora the previous night when I was in K.G.H. following surgery on my arm the previous day (Aug. 25).

slight Aurora

We saw a glow up 40° in the N. and in the NW. There were hints of red in N. and NW. and I thought hints of a spike or column E. of Polaris. Occasionally I saw hints of "flaming" or pulsation near the zenith, i.e., near and in the area between the northern part of Cygnus and Cepheus. We did not watch later in the night to see if the Auroral activity increased.

Sa-Su. Aug. 29-30 00:15-00:40UT nd fgml, twl ne

- watching for stars appearing in astronomical twilight and first saw Vega, Arcturus, and Deneb. There was also a beautiful Perseid Meteor in the N., probably about mag. -2 or -3.

Sun. Aug 30 17:10-17:15 UT doorstep of observatory C-8, 32 T.O.F.

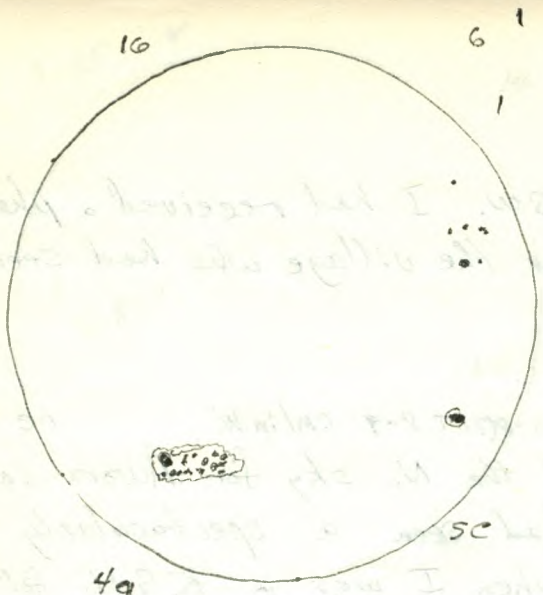
sun 4g 36s RSN 76 ~~C-8, 32 T.O.F.~~

M.-Tu. Aug. 31-Sept. 1 02:20-02:50UT nd s8(?)T 6-7 gml; partly cloudy ne.

- observed constellations in N. sky, one short bright meteor near zenith - about mag. -2.
- Auroral glow in N. up 20° to 30° with some hints of slight colouring - perhaps red or pink.
- Moon was covered by cloud for most of the session.

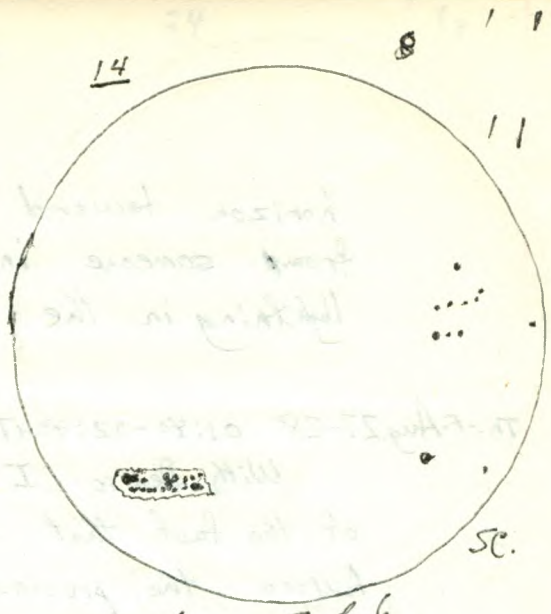
F. Sept. 4 18:50-18:55UT t C-8, 32, 28, 20, 15.5 T.O.F.

sun 5g 30s RSN 80



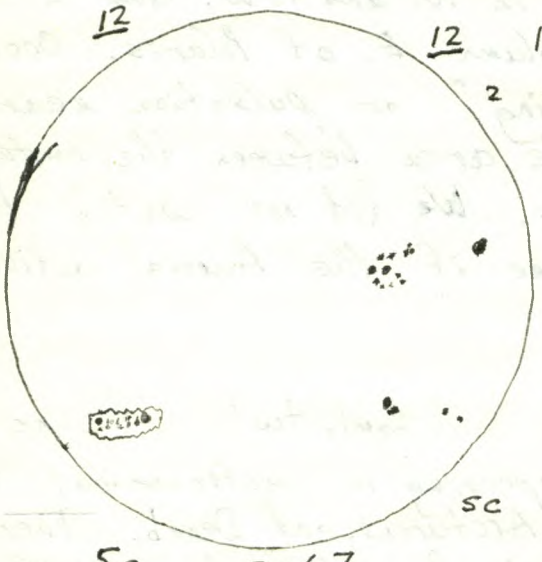
4g
24s
RSN 64

Sept. 5
18:15-18:20 UT



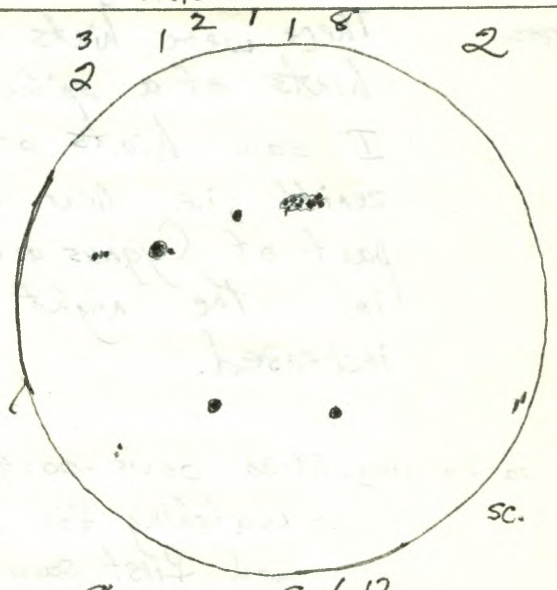
6g
26s
RSN 86

Sept. 6.
18:00-18:05 UT



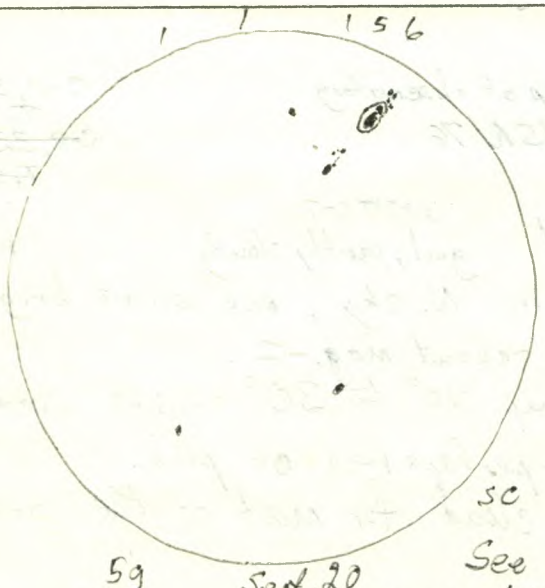
5g
29s
RSN 79

Sept. 7
17:50-17:55 UT



8g
20s
RSN 100

Sept. 12
18:35-18:40 UT



5g
14s
RSN 64

Sept. 20
20:30 - 20:35 UT

See next page

1998

F-S. Sept. 4-5 02:30-02:55 UT nd S-7(?)T5- fml ne

- stars of the N. sky that could be seen under an almost-full moon.
- glow in N. up about 20° - perhaps Aurora; at times, also possibly spikes or vertical bands, but ones that were difficult to be sure of, because of the glow of the almost-full moon.

Sa. Sept. 5 18:15-18:20 UT t C-8, 32, 28, 20, 15.5
sun 4g 24s RSN 64 T.O.F.

Sa.-Su. Sept. 5-6 02:00-02:30 UT near sh fml ne

With Denise and Phyllis and Keora Loughrin and Christina, I observed the full Moon and Jupiter about 15° E. of it. We looked for Saturn about 15° - 20° E. of ~~Saturn~~ Jupiter, but did not see it. I saw Saturn about ½ hour later when it was well up in the SE.

Su. Sept. 6 18:00-18:05 UT t C-8, 32, 28, 20, 15.5.
Sun 6g 26s RSN 86 T.O.F.

M. Sept. 7 17:50-17:55 UT t C-8, 32, 28
Sun 5g 29s RSN 79 - some clouds T.O.F.

Th.-F. Sept. 10-11 02:30-02:45 UT y S-7(?)T8 gml ne

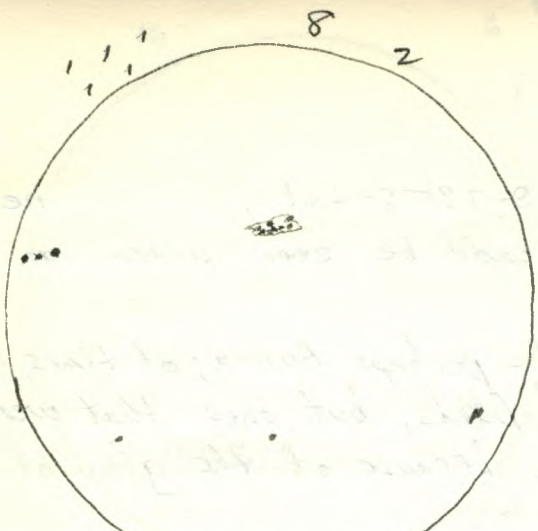
- observed constellations and stars of autumn just after moonrise
- Jupiter and Saturn in SE.

F.-S. Sept. 11-12 01:30-03:10 UT y S8(?) T7-8 (clouds) ne; 7x35b

ne: Constellations and stars of autumn; Jupiter; 2 bright meteors.

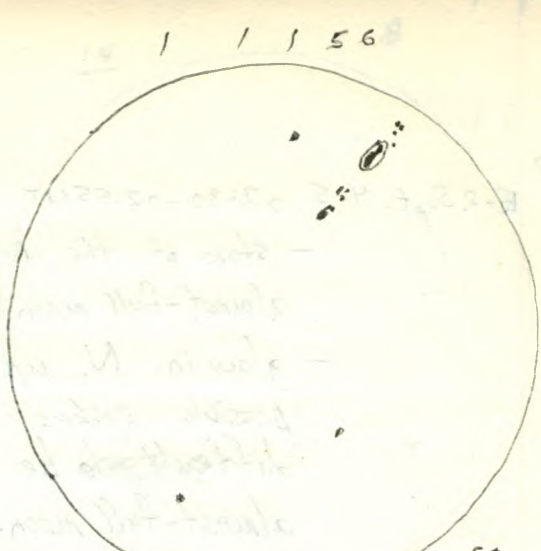
7x35b: areas of Cygnus, M22, M25, M13, M31, 51 Peg.

Sa. Sept. 12 18:35-18:40 UT t C-8, 32, 28, 20, 15.5
Sun 8g 20s RSN 100 T.O.F.



79
155
RSN85

Sept. 13
18:35 - 18:40 UT



59
145
RSN64

Sept 20
20:30 - 20:35 UT

1998 Sat-Su. Sept. 12-13 01:30-02:45 UT y S-8-9(?)T 9-9.5! ne; 9x63b

ne.: Summer and autumn constellations - observed with my "arm cast" on 2½ weeks after the surgery on my arm

9x63b.: M16, M17, M18, M24, M25, M22, M8, M20, M13, M11, areas of Cygnus, area of Barnard's Star, M31, M33, Double Cluster, Jupiter, Saturn, area of Cepheus, incl μ Cep and δ Cep, M15, ν Del and Eν Del, IC4665, NGC6633 OC in Oph, 51 Peg, area North America Nebula.

Su. Sept. 13 18:35-18:40 UT t C-8, 32, 28, 20, 15.5 T.O.F.

sun 7g 15s RSN85

Su.-M. Sept. 13-14 01:55-02:05 UT nd T-3-4 (quite cloudy) ne

- some constellations, Jupiter, one meteor - perhaps mag. 3.

W.-Th. Sept. 16-17 02:20-03:20 UT y S-8(?)T 8.5-9 ne; 9x63b

ne: Coastellations, Jupiter, Saturn, 3 meteors one of which was quite bright, probably mag. 1.

9x63b: M31, M33, M15, M11, M13, area of Barnard's Star, areas of Cygnus and Cepheus, Double Cluster.

Th.-F. Sept. 17-18 02:00-04:00 UT t S-8(?) T 6-8 (clouds by times) ne; C-8, 32, 20, 15.5

ne: constellations, Jupiter, Saturn

C-8: M31, M13, β Cyg, ε Her, Jupiter and moons, Saturn and Titan, M57.

I observed with Denise and Henry Beissel after my retirement party at the high school.

F.-S Sept. 18-19 02:30-03:20 UT y S-8(?) T9! ne; 9x63b

ne.: constellations, Jupiter, Saturn

9x63b: M31, M33, M13, M57 area, areas of Cygnus, area of Barnard's Star, M11, M15, Double Cluster, 51 Peg, ν Del and Eν Del, area of Cepheus, IC4665, M34.

Su. Sept. 20 20:30-20:35 UT doorstep of O.O. C-8, 32, 28, 20, 15.5

sun 5g 14s RSN64

1998

M.-T. Sept. 21-22 01:00-03:30 UT y S-8? T8-9 (some intermittent cloud) ne; 9x63b

ne: constellations, Jupiter, a meteor

9x63b: M31, M33, M15, Milkadarea, areas of Cygnus and Cepheus, M22, Jupiter, 51 Peg.

There was a glow in N. up to about 20° that might have been Aurora.

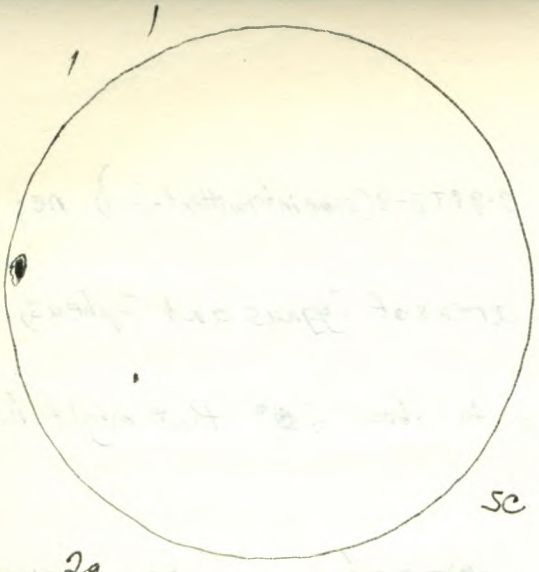
W.-Th. Sept. 23-24 01:30-03:40 UT y S9(?) T9.5! ne; 20x100b

ne.: Constellations, Jupiter, Saturn, 1 bright meteor in N.

20x100b: M33, Double Cluster, area of IC4665, Uranus in Cap ESE of υCap at about α 20h47m δ -18°.7 (See S.&T., Sept. '98 p.110, and U344 and MSA 1360) and nearby SCap, which was at about mag. 10, though it may not be a variable star at all since it is not marked as such and is not listed as such in Burnham's Celestial Handbook. Also nearby was BL Cap; there was no information about it in Burnham's Celestial Handbook. Neptune very near the border between Cap and Sgr at about α 20h6m.5 δ -19°.9 (See S.&T. Sept. '98 p.110 and U343 and MSA 1362) Neptune was about as far WSW as Uranus was ESE of the distinctive grouping of σCap, πCap, and ρCap which is a "trio" SSE of βCap. -also Jupiter and Saturn, Pleiades, M34.

MSA It was my first real "observing session" with the MSA (Milleaium Star Atlas). Because of the excellent transpareacy, I thought I could see with the 20x100b down to the limiting magnitude (mag. 11) of the atlas or very close to it, if I observed carefully. There may have been a very few stars that I could not see that were marked on the atlas.

Aurora There was a glow of Aurora in the N. up about 15° to 20°. By times it seemed quite bright.



2g
2s
RSN22

Sept. 29
19:45-19:50UT

1998 Tu. Sept. 29 19:45-19:50 UT ~~t~~ C-8, 32, 28.
sun 2g 2s RSN22 Clouds interfered. Denise saw 4 T.O.F. spots

W.-Th. Sept. 30-Oct. 1. 01:30-02:00 UT t S?T3-5 clouds C-8, 32, 15.5
Jupiter - clear by times, when clouds permitted. Io and its shadow were in transit. The shadow was probably visible. Two of the bands were very distinct when the clouds permitted good viewing.

M.-T. Oct. 5-6 - 22:55-23:15 UT sh (about 20 min twl after sunset) ne
Denise and I observed Jupiter up about 20° in SE and waited for the moon - just about 3 hours after time of Full Moon - rising in ESE among the trees across the lake. There was some cloud in the area. According to some sources such as the O. Hg, it was the Hunter's Moon since the Full Moon in September was the Harvest Moon; according to some sources, it was the Harvest Moon, since it was closer to the Equinox than the previous Full Moon and the Full Moon in November would be the Hunter's Moon.

- 01:00 - 01:40 UT t Sml, some cloud Ast, 8~~mm~~, 8+Ba, 15.5, 15.5+Ba, 12Ko, 12Ko+Ba
Jupiter and 4 moons on one side, with bands clearly visible. View was excellent with 12mm König eyepiece and Barlow lens, i.e., at (37.1 x 2 =) 74.2X.
Moon where some features along the limb stood out in profile.
It was only about 5 hours ~~after~~ Full Moon.

T.-W. Oct. 6-7 23:40-23:50 UT sh - on dock twl, gnl ne
Standing on the dock, I watched the "near Full Moon" rise through the trees - "big and orangish in colour". It was a little more than a day past Full Moon.
01:15 - 02:40 UT (periodically) t gnl. ne; Ast, 12, 12+Ba, 8, 8+Ba
ne: Moon, Saturn - about 2° from moon, Jupiter, bright stars.
Ast: Saturn, Jupiter and 3 moons - Europa was transiting.
- looked for shadow of Io after its transit was to have begun at 02:23 UT, but was not sure

of seeing it, although the bands of Jupiter were quite clear.

Th-F. Oct. 8-9 23:50-01:20UT y and t s-7(?)T 9.5! ne; Ast, 12, 12+Ba, 8+Ba

ne.: Under superb conditions as far as transparency was concerned, I observed the clear skies especially in the northern part of the sky, to see if there was any shower or even possibly a storm from the so-called "Giacobinids or Draconids" (See Sky and Telescope, Oct. 1998, p. 100-105 - A Surprise October Meteor Shower?). I did not see any notable activity. Once I thought there was a faint one, and later also I thought there was a faint one, but other than that I did not see any. Denise observed also for a while, but did not see any meteors. The sky was very beautiful. I photographed several areas. A glow in the N. was seen; it might have been Aurora.

- Giacobinids seemed not to materialize.

- possible Auroral glow.

Ast: Jupeter and 3 of its moons; Saturn also with one of the eyepiece arrangements - 12ko+Ba. Jupiter's moon, Io, was not seen since it had an Occultation Disappearance at 23:29 UT and later would have an Eclipse Reappearance at 2:18 UT.

M.-T. Oct. 12-13 01:30-02:30UT y 20x100b

I tried to find Comet Giacobini-Zinner in the area near and just W. of Barnard's Star. (See Sky and Telescope, Nov., 1998, p. 107, and U249, and MSA 1273.) Although I looked carefully, I was not sure of seeing it.

- Jupiter, Saturn.

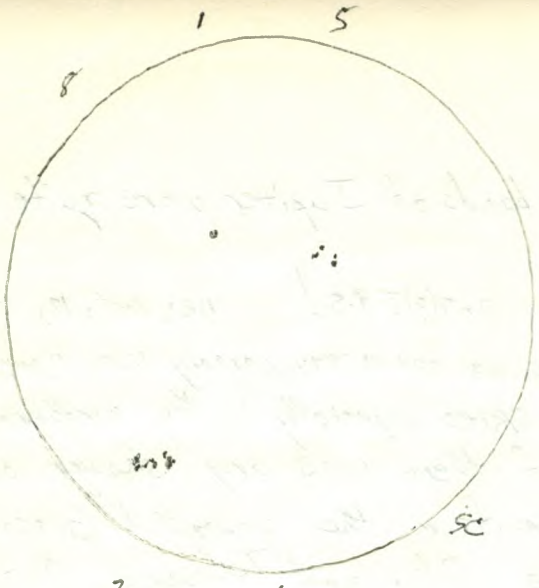
looked for Comet Giacobini-Zinner

Th.-F. Oct. 15-16 ± 02:30-02:35UT and s?T9 ne

- briefly looked at the clear skies before retiring, seeing Jupiter, Saturn, and constellations.

F.-S. Oct. 16-17 00:30-03:00UT t and y s-8(?)T8.5-9 C-8, 32, 19, 15.5, 12; 20x100b.

C-8: Jupiter - at about 00:40 and slightly thereafter - the



3g
14S
RSN44

Oct. 20
19:40 - 19:45 UT

1998

transit egress of Io, and briefly the shadow of Io; Saturn and Titan ~~with Titan~~ and perhaps 2 other moons, almost certainly one on the same side as Titan and about half way out to the distance of Titan. (; M31, M32, M110, M33) — See below. Omit here.)

20x100b: looked very carefully for Comet Giacobini-Zinner in northern Ophiuchus east of area of Barnard's Star, but was not sure of seeing it (See Sky and Telescope, ~~Oct.~~ Nov. 1998, p. 107 and MSA 1272). I looked near the stars 67 Oph and 70 Oph. Also Uranus, Neptune, Pleiades, M31, M32, M110, M33, Pleiades, scanned the area near the Hyades for asteroid Ceres and near Pleiades for asteroid Ganymed but did not determine for-sure which were the sought-for objects. (See Sky and Telescope, Nov. 1998, p. 109.), Hyades.

M.-Tu. Oct. 19-20 00:40-01:30 UT y and t S-8(?) T8 ne; 9x63b; Ast, 15.5, 12.8.

ne: autumn constellations; glow in N. that was probably Aurora, with some indication that there was a slightly reddish vertical band

9x63b: area of Barnard's Star and area SE from it searched in hope of seeing Comet Giacobini-Zinner.

Ast: area mentioned above, also observed without the certainty of seeing the Comet; Jupiter and 4 moons; Saturn and Titan; with the 8 mm ocular and Barlow (at 111X) ε Her which seemed to be "almost split"; at least it was evident that it was a double.

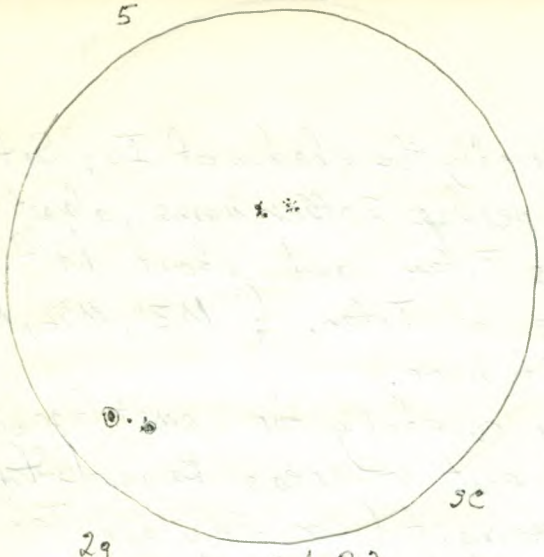
Clouds moved in at the end of the session.

Tu. Oct. 20 19:40-19:45 UT t C-8, 32, 28, 29, 15.5
sun 3g 14s RSN 44 T.O.F.

Tu.-W. Oct. 20-21 00:45-02:30 UT y S-8(?) T5-8.5 (cloudy by times) ne; 20x100b

ne: Jupiter, Saturn, autumn constellations, aurora/glow in N.

5 9

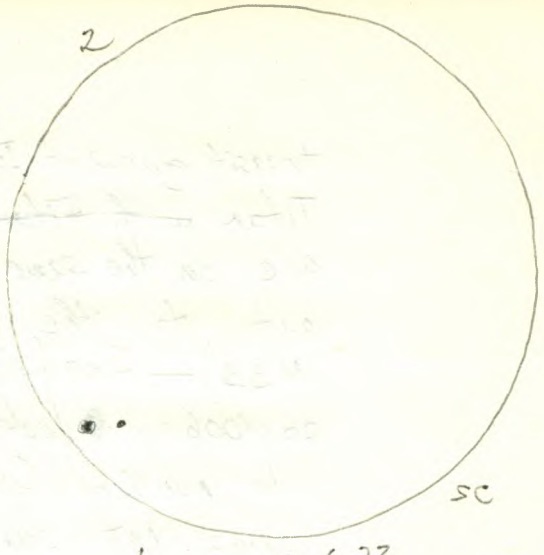


SC

2g
14s
RSN74

Oct. 22
17:30-17:35UT

2



SC

1g
2s
RSN12

Oct. 23
20:25-20:30UT.

1998

Comet Giacobini-Zinner

29x100b: Comet Giacobini-Zinner seen faintly with averted vision at R.A.: 18^h17^m Dec.: $+1.^\circ6$ (See U249 and Sky and Telescope, Nov. 1998 p.107) It was predicted to be at mag. 9.5 at 0h on Oct. 22.

Ganymed

the asteroid Ganymed at about mag. 9.5 and at about R.A.: 4^h4^m Dec.: $+16.^\circ8$ (See U133 and Sky and Telescope, Nov. 1988 p. 109), Jupiter, Saturn; Barnard's Star and its area, U and EU Del, M13, M45, M15, The Coathenger Cluster - Col 299, the planet Neptune, ~~the~~ some stars in the Hyades.

Th. Oct. 22 17:30-17:35 UT t C-8, 32, 28, 20, 15.5
T.O.F.
sun 2g 14s RSN 34

Th.-F. Oct. 22-23 ~~00:35~~-01:00 UT y increasing cloud ne
- constellations, Jupiter, Saturn. Clouds moved in.
03:30-04:40 UT y S-7-8(?) T 8.5-9 ne
- observed constellations, 4 meteors, 1 of which was probably an Orionid. The Orionids peaked at 7h UT on Oct. 22, about 21 hours earlier.
- photographed areas of the sky.

probable Orionid

F. Oct. 23 20:25-20:30 UT t. C-8, 32
T.O.F.
sun 1g 2s RSN 12

F.-S. Oct. 23-24 00:50-03:20 y S-8-9(?) T 8.5-9 ne; 20x100b; Ast, 19, 12, 8 +Ea +Ba +Ha
ne.: constellations; glow in N. probably Aurora

Comets

20x100b; Comet Giacobini-Zinner near the star 59 Sagittarii Caudae at 18^h28^m δ $+00.^\circ2$ (See U250 and MSA 1295) It was "fuzzy" and at about mag. 9.4 or 9.5 - See S.&T Nov. 1998 p.107); Uranus, Neptune, M15, M11, Pleiades, M1, M36, M37, M38.

Ast.: Jupiter and its 4 moons - after the Transit Egress of Io, Saturn and Titan.

2g
4S
RSN24

Oct. 24
18:35-18:40UT

1998

Sa. Oct. 24 18:35-18:40UT t C-8, 32, 28, 29, 15.5
sun 2g 4s RSN 24 - Denise saw one additional T.O.F. spot.

Ba
Sa.-Su. Oct. 24-25 00:00-02:20UT y, t S8(?) T8-8.5 ne; 20x100b; Ast 19
ne: constellations; faint glow in N., perhaps Aurora.
20x100b: Comet Giacobini-Zinner in Serpens Cauda at about R.A 18h 32m Dec. — 00°.2 (See U250) It was perhaps about mag. 9, and appeared slightly more difficult to see than the previous night, perhaps because at the beginning of the session a crescent moon was in the W. sky. It had moved about 1° SE from where it was the previous night. ~~Jupiter and 4 moons~~ Uranus, Neptune, R Trianguli (See U93) - predicted to have been at mag. 6.2 on Oct. 17; W Trianguli, about 1° from R Trianguli. Z Cygni (See U119.) which was to be at mag. 5.2 on Nov. 10; RS Cygni which was to be at mag. 7.2 on Oct. 28 — only about 1° from P Cygni; star fields in Cygnus; M11,
Comet Giacobini-Zinner.
4 or 5 Variables
Ast.: Jupiter and 4 moons, Saturn and Titan, M15, the Pleiades, area of Barnard's Star

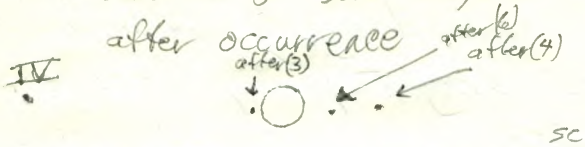
Su-M. Oct. 25-26 22:30-23:30UT t during twl. C-8, 12, 19, 19+Ba.
- observed craters on the crescent moon and Jupiter and its 4 moons - good seeing
- observed with Denise, Tim and Kathy, Peter and Linda and Janice - all of whom had been here for a belated Thanksgiving.
01:00 - 01:20 UT(?) y and t cr. moon still up ne; C-8, 12
ne: Constellations
C-8: Denise and I observed Saturn.

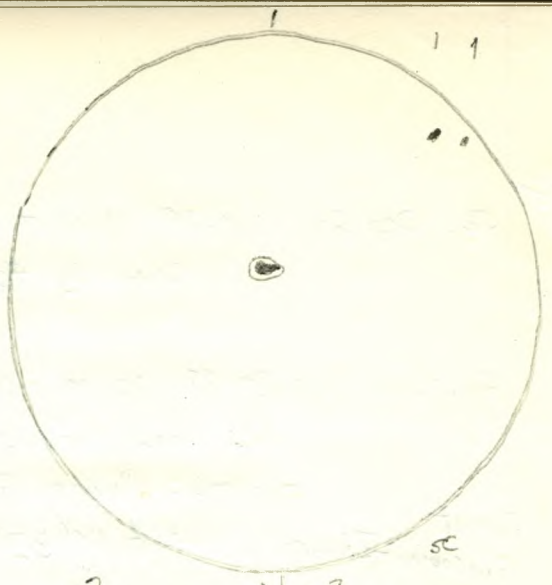
Th.-F. Oct. 29-30 23:30-23:35UT t gml Ast, 12+Ba
Jupiter and 4 moons on same side
04:15-04:20UT t gml Ast, 12+Ba
Jupiter amid clouds.

Jupiter's Satellites' Phaenomena
for Oct. 31 - Nov. 1:

(1)	23:16	I. Oc. D.	?
(2)	23:29	II. Sh. I	- tried
(3)	0:05	II. Tr. E.	V
(4)	0:57	III. Ec. R.	—
(5)	2:07	II. Sh. E	—
(6)	2:32	I. Ec. R	V

V = observed or saw very soon after occurrence





3g
3s
RSN33

Nov. 3
20:20-20:25 UT

1998

Sa.-Su. Oct.31-Nov.1 23:00-02:40UT t gml. C-8,19 Ast, 12+Ba

C-8: Jupiter and several of the moons depending on the time. (For a while only 1 moon, Callisto, was easily seen - well out from the planet, as Io was occulted, Europa and later its shadow were transitting, and Ganymede was in eclipse). (See accompanying chart.) after 0h05m UT II-Europa was seen. The reappearance of III-Ganymede was not observed but it was later seen, after reappearing from eclipse. Although I tried to see the shadow of II Europa, it seemed difficult to see. Denise and I observed the brightening of I-Io after it first appeared - apparently a couple of minutes early since we were watching before 2:32 UT when its reappearance was predicted It seemed to brighten gradually for several minutes.

Saturn and Titan

Ast: -Jupiter and its moons. (See above.)
-Saturn and Titan.

Tu. Nov.3 20:20-20:25UT t C-8, 32

Sun 3g 3s RSN33 - sun low, near or "in the trees T.O.F. - with Denise.

T.-W. Nov.3-4 02:45-02:55 UT t fml. Ast, 12Köt Ba

- Jupiter and its 4 moons - bands clearly seen; Saturn and Titan.

W.-Th. Nov.4-5 01:30-01:45UT t fml Ast, 12 Ko+Ba

- Jupiter and its 4 moons; Saturn and Titan.

~~Sa.-Su.~~ Nov. 7-8 02:35-02:38 and later in and nd gml and some cloud ne

I checked to see if the prediction for a possible Aurora following the reported solar flare on Nov.5 would materialize. There was indeed an Aurora, perhaps 40° or so wide (maybe less) and up about 25° to 30° in the N. There was some cloud but it was quite easy to see.

Aurora

1998

(02:00a.m. E.D.T.)

Su.-M. Nov. 8-9 07:00 UT in gml ne

Aurora

- Looking out the north window, I saw an active "flaming" Aurora in the N. part of the sky. Apparently the skies had cleared, at least partly and the flaming Aurora was easily seen in spite of the bright moonlight.

Th.-F. Nov. 12-13 01:30-02:00 UT y S8(?)T8.5 ne; 9x63b.

ne.: constellations, trying to see χ Cyg which was supposed to have been up to its max. (mag. 5.2) on Nov. 10. See Sky and Telescope, Nov., 1998, p. 113).

9x63b: areas in Cygnus, Taurus, and Auriga including the 3 open clusters in Auriga - M36, M37, M38.

ne.: fairly bright glow in N. up about 15° - likely Aurora.

04:10-04:40 UT y ne

- more observations of constellations; continuing glow - probably Aurora - in N., now up about 20° to 25°

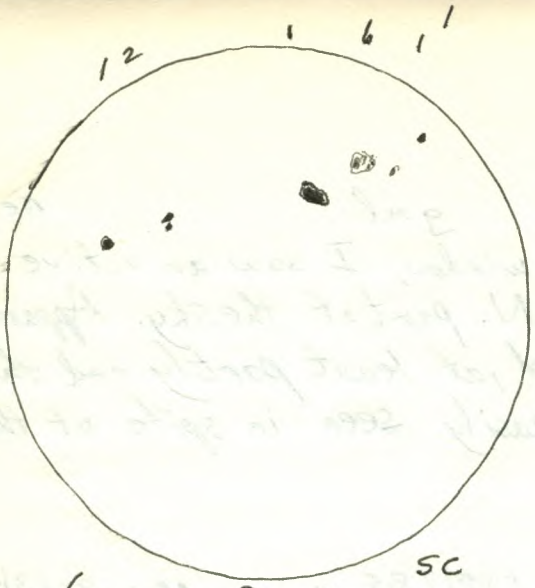
Su.-M. Nov. 15-16 23:00-23:50 UT y late twil until 23:20 UT S-8? T-9 12½": 36, 32, 29, 165

First Light

- First Light for Denise's 12½" Meade Dobsonian telescope. Generally it seemed to perform quite well. The base needs to be stabilized somewhat better. We had assembled it on Sat. Nov. 14.
- Jupiter and 4 moons, Saturn, Pleiades, M31, Double Cluster.
- Some brightness in N. - probably Aurora.

T.-W. Nov. 17-18 01:00-07:00 periodically ⊛ y 5-8(?)T9-9.5! ne

- Since the max. of the Leonid Meteor Shower had been predicted for Nov. 17, 17 UT or slightly later, there was a possibility of a good meteor shower or even a meteor storm (though most predictions were for the storm to occur in Asia while it was daylight in North America) on the night of Nov. 16-17 or Nov. 17-18. The previous night, Nov. 16-17, was



6g
12S
RSN 72

Dec. 4
19:20-19:25UT

1998.

very cloudy and snowy. I was glad that this night was spectacularly clear.
I observed and photographed from the yard, hoping to see and record on film a bright Leonid Meteor. I also observed through the east window from indoors and through the south door while lying on the couch.
Approximate times: - outdoors 01:00 UT to 01:40 UT; indoors - 01:40 - 02:20 UT; outdoors 02:20 - 02:45; indoors - 02:45 - 04:50; outdoors - 04:50 - 05:20
There were not many bright Leonids.
At about 03:55 UT from indoors I saw a very bright meteor - perhaps mag. -5 or -6 in Ursa Major in NE - between Dubhe and Merak - "in the trees".
At about 06:00 UT (1:00 a.m E.S.T.) there were two very bright Leonids in or near Gemini - the first one going between Castor and Pollux. They were fast and maybe about mag. -3. I regarded the first bright one as possibly a Leonid (but maybe not) and the latter two as definitely Leonids, as far as I knew.
Though cold, it was a good night for observing.

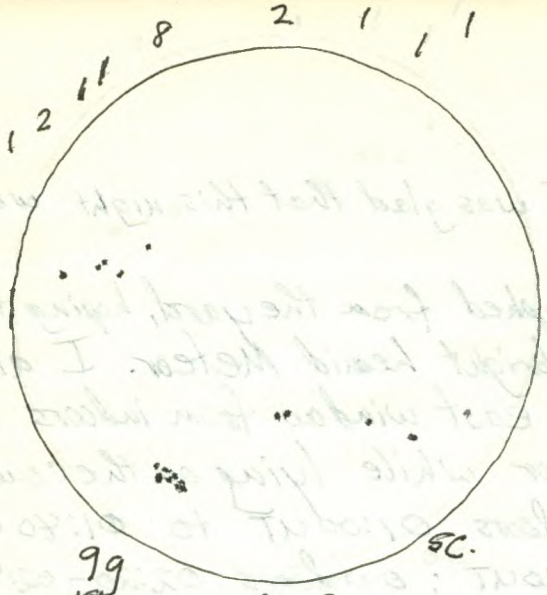
2, maybe 3, bright Leonids.

M.-Tu. Nov. 30-Dec. 1 22:05-22:10 UT t twl. gml. Ast, 32, 20, 15.5, 8
Jupiter and 3 moons.

Tu.-W. Dec. 1-2 22:15-23:10 UT y twl, gml. 12½"; 36, 19, 15.5
Jupiter and 4 moons until beginning of transit of Io at about 22:25 UT; Saturn and two of its moons; lunar craters; β Cyg - excellent(!); M57 - the Ring Nebula. - observed with Denise

F. Dec. 4. 19:20-19:25 UT t C-8, 32, 28, 20, 15.5
Sun bg 12s RSN 72 T.O.F.

F.-S. Dec. 4-5 01:00-01:55 UT y gml. 12⅓"; 36, 19, 12
Jupiter and 4 moons, Saturn and probably 3 moons or more, M15,



99
18 5
RSN108

Dec. 9
19:40-19:45UT

1998.

γ Arietis - beautiful double (!); some stars in the Plerades, some craters on the moon. - observed with Denise

M.-T. Dec. 7-8 01:30-02:15 UT y S-8 T 9-9.5 ! until moonrise at 02:03 20x60b
- looked for Comet Linear - named after MIT's Lincoln Laboratory Near Earth Asteroid Research (LINEAR) Team which discovered it in late October, and was later identified as a comet by team member Frank Shelley - according to Sky and Telescope's web site. Its position for 0h UT on Dec. 8 was given as α 21h 36.m57, δ +29° 11.'1 (See U127 and MSA 1167) east from ζ Cyg and near V2166 Cyg - marked in MSA. - was not certain of seeing it, but by times I thought I saw it, sometimes by using or trying to use averted vision. (The comet was supposed to have been up to mag. 8.2 on the night of November 13.
- also Jupiter and 2 moons, area of Deneb, M15, R Lep (Hind's Crimson Star), and stars in the area, including ~~RA~~ RX Eridani; M35, M36, M37, M38, M42, M43, M45, NGC 2244 - the cluster associated with the Rosette Nebula, though that nebula could not be seen because the gibbous moon was up by the time I looked in that area

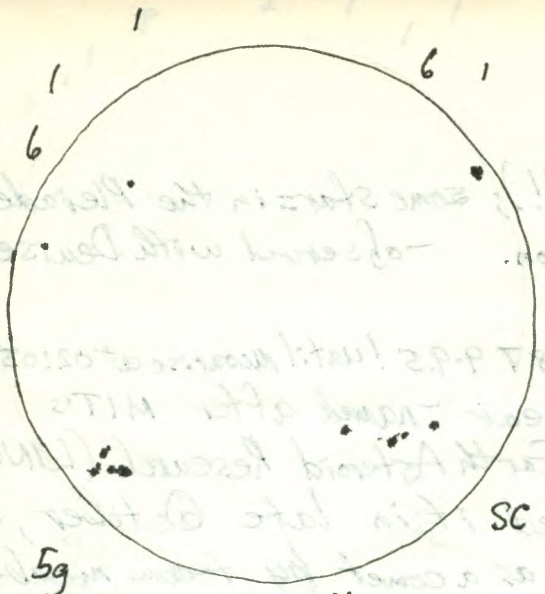
- possibly Comet LINEAR

M15, M35, M36, M37, M38, M45, M42, M43.

W. Dec. 9 19:40-19:45 UT t "boiling" C-8, 32, 28, 29, 15.5 T. O. F
Sun 9g 18s RSN 108

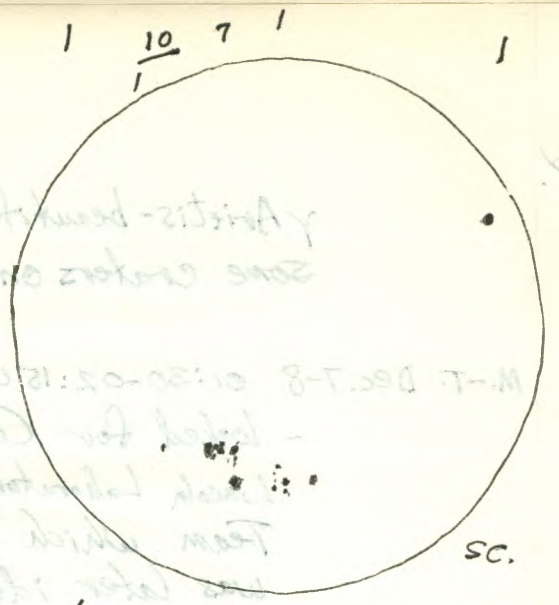
W.-Th. Dec. 9-10 02:35-03:40 UT y S-8(?) T9 20x100b
M42, M43, R Lep - very red (!), M35, M36, M37, M38, S Mon and nearby area, NGC 2244 and part of Rosette, M78, Saturn, Jupiter, o Ceti (Mira) and nearby area (See U219.), area of R Ceti, but this variable was probably not seen because of being near or at the faintest part of its cycle - a LPV - See Burnham. p. 625. Also near the

Mira



5g
155
RSN65

Dec. 11
18:05-18:10UT



6g
215
RSN81

Dec. 13
17:30-17:40UT

1998

area of RCeti is RSCeti (See U219 and 220.) - easily seen and listed in Burnham (p.625) as an Irregular Variable and varying from mag. 8.2 to 8.6. - M77, a galaxy near δCeti (U220)

(3:35 - 3:40 E.S.T.)

Th.-F. Dec. 10-11 08:35-08:40 UT in lgmd ne

Looking out the N. bathroom window, I saw an active Aurora in the N. It stretched for about 40° in width and up about 15° or 20° from the horizon. It was fairly active with flaming

Aurora

F. Dec. 11 18:05-18:10 UT t C-8, 32, 28, 20, 15.5
sun 5g 15s RSN65 T.O.F.

F.-S. Dec. 11-12 22:00-22:10 UT y twilight 12½"; 36

With Deaise's telescope I observed Jupiter and 3 moons. Clouds prevented observing very much or seriously "star testing" the instrument.

S.-S. Dec. 12-13 22:00-22:20 UT 00 twl C-14; 32, 19

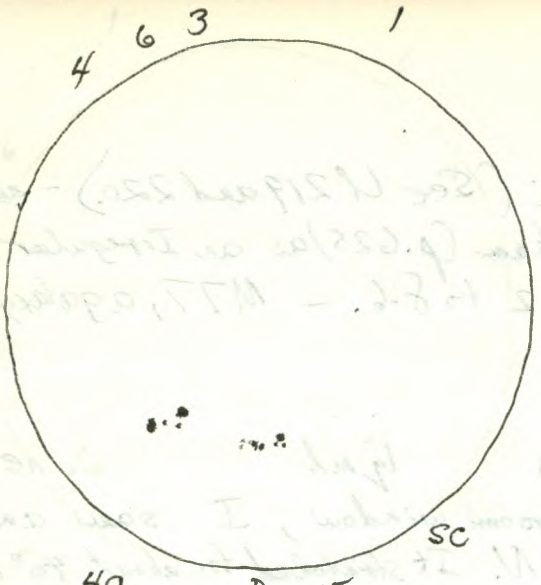
Jupiter and 4 moons, Saturn and 3 moons

23:20 - 01:00 UT 00 S-8(?) T8.5-9.5 (clouds in some areas) C-14, 32, 19*, 40,

- looked for Comet LINEAR which according to Sky Pub.'s web-site was to be at α 21h 26.m76, δ +25° 22'.1 in Vul. I saw something that might well have been the Comet at, or approximately at the location, but was not absolutely sure of it. - IC289 (Object #10 on the R.A.S.C.'s Finest N.G.C.) quite faint PN, but I was able to see it with the "new" 32 mm Plössl eyepiece that had come with Deaise's telescope and even better when adding the Lumicon Oxygen III filter. - Confirmed from field stars in the eyepice by checking MSA45 - found by star-hopping from α Per to γ Per to St23 (See U38.)

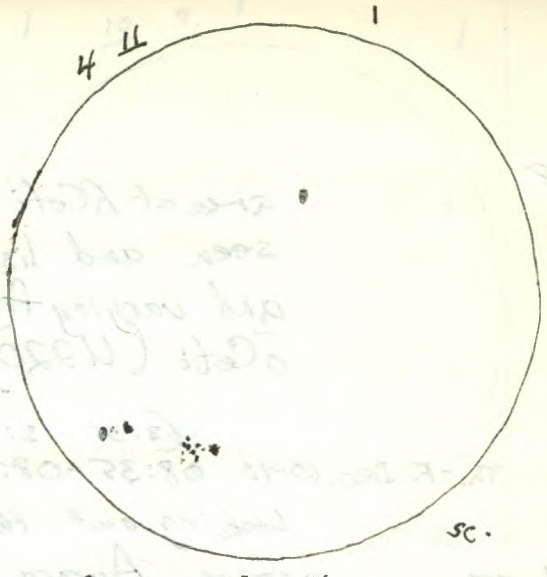
IC.289-PN

Su. Dec. 13 17:30-17:40 UT t C-8, 32, 28, 20, 15.5
Scen 6g 21s RSN81 T.O.F.



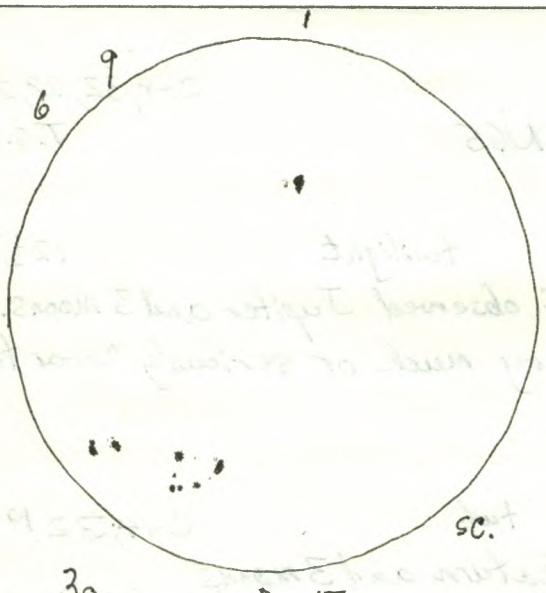
4g
14S
RSN54

Dec. 15
19:10-19:15UT



3g
16S
RSN46

Dec. 16
17:15-17:20UT



3g
16S
RSN46

Dec. 17
17:00-17:05UT

1998 Su.-M. Dec. 13-14 02:00-04:30 UT y S-8(?) T 9-9.5(!) ne; 12½, 32, 19, 8.8

ne: On "peak night" for the Geminid Meteor Shower, Denise and I observed. We saw many Geminids - perhaps 3 or 4 dozen in total, but we did not keep an exact count. Several were very bright; one below Procyon was about mag. -5. I also photographed areas of the sky hoping to "capture a Geminid".

12½": Jupiter, Saturn, M44, Pleiades, Orion Nebula and the Trapezium, M41, M35.

Tu. Dec. 15 19:10-19:15 UT C-8, 32, 28, 20, 15.5
Sun 4g 14s RSN54 T.O.F.

T.-W. Dec. 15-16 04:45-04:50 UT y s-8(?) T 8.5 ne

- Observed winter constellations - after returning from Kingston after seeing the Kingston Symphony's performance of Handel's Messiah at St. Mary's Cathedral.

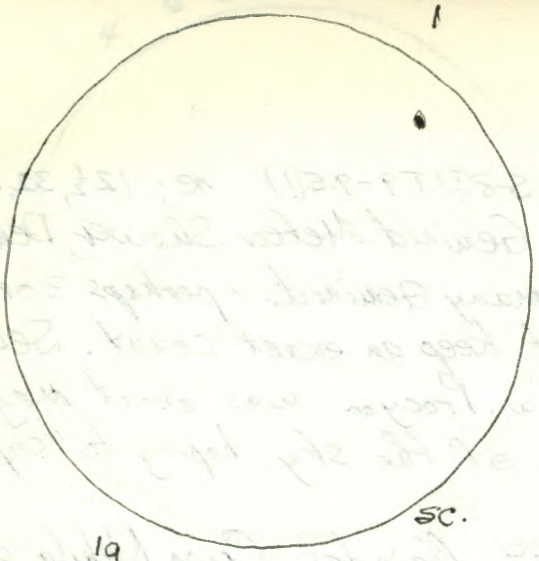
W. Dec. 16 17:15-17:20 UT C-8, 32, 28, 20, 15.5
Sun 3g 16s RSN46 T.O.F.

Th. Dec. 17 17:00-17:05 UT C-8, 32, 28, 20, 15.5
Sun 3g 16s RSN46 T.O.F.

1999 Su.-M. Jan. 3-4 23:00-01:00 UT periodically y gml. ne

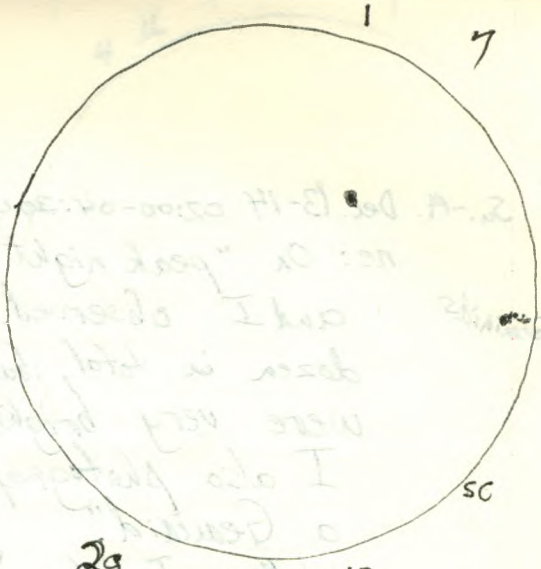
- winter constellations; Jupiter, Saturn, bright gibbous moon after it rose

I thought I might see a bright Quadrantid Meteor or several but did not see any bright ones. The time of maximum was listed in the Observer's Handbook as Jan. 3 at 23:00 UT. However, there was some cloud; the moon rose while I was observing, and I was observing only casually while I shovelled snow to make a path to the road where our cars were parked. We had just returned after being away for about 16 days - since Dec. 18 when we had left for



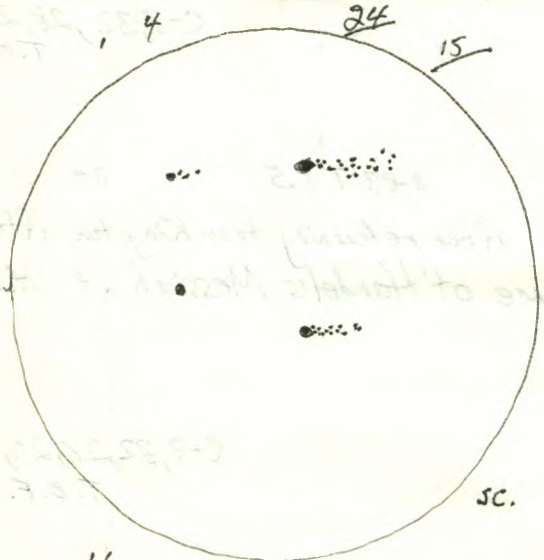
19
1S
RSN11

Jan. 11
19:20-19:25 UT



29
8S
RSN28

Jan. 13
18:45-18:50 UT



4g
44s
RSN84

Jan. 17
17:15-17:20

1999

Syracuse and our trip to Naples, Florida for the Christmas vacation at the condominium owned by Candee and Joe Sugamele. While in Naples, I observed the sky and winter constellations on several evenings. Orion and the winter constellations were noticeably higher as viewed from south-western Florida.

M.-T. Jan. 4-5 00:40 - 00:45 UT y S-8? T8-9 ne
winter constellations, Jupiter, Saturn.

5:00 - 5:30 p.m. E.S.T.

T.-W. Jan. 5-6 22:00 - 22:30 UT ice twl. ne
Venus. - Venus - bright in WSW - up about 10° or more - first sighting of current evening apparition - observed while I was using the snow blower to clean off a section of ice on the lake.
- Jupiter - high in SW sky
01:05 - 01:20 UT y S-8(?) T9 ne
- winter constellations; tried to see Mira (o Ceti) naked-eye, but was not sure of seeing it

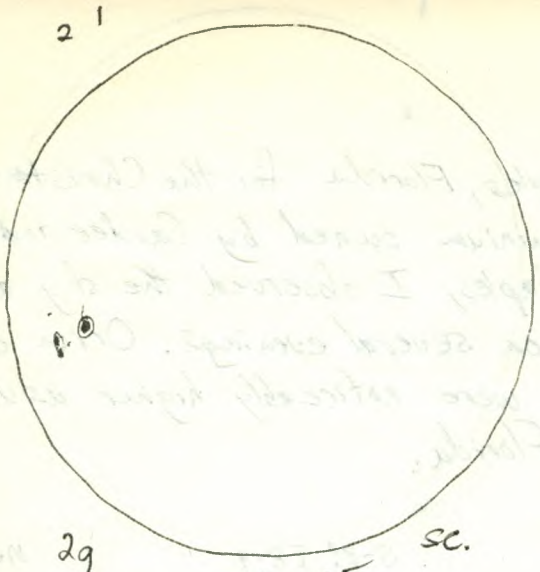
Sa.-Su. Jan. 9-10 04:20 - 04:35 UT y S-8(?) T8-8.5 ne
- winter constellations, Saturn

M. Jan. 11 19:20 - 19:25 UT t C-8, 32, 28, 29, 15.5
sun 1g 1s RSN11 T.O.F.

W. Jan. 13 18:45 - 18:50 UT t C-8, 32, 28, 29, 15.5
sun 2g 8s RSN28 T.O.F.

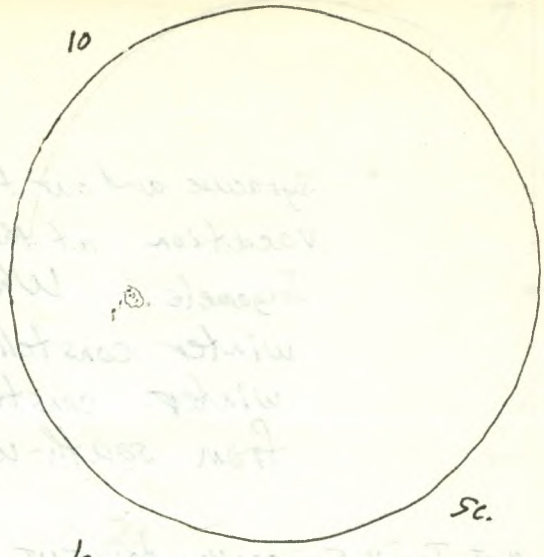
W.-Th. Jan. 13-14 02:05 - 02:10 UT y S-8(?) T8.5 ne
Jupiter, Saturn, winter constellations - cold! -25°C.

Su. Jan. 17 17:15 - 17:20 UT t C-8, 32, 28, 29, 15.5
sun 4g 44s RSN84 T.O.F.



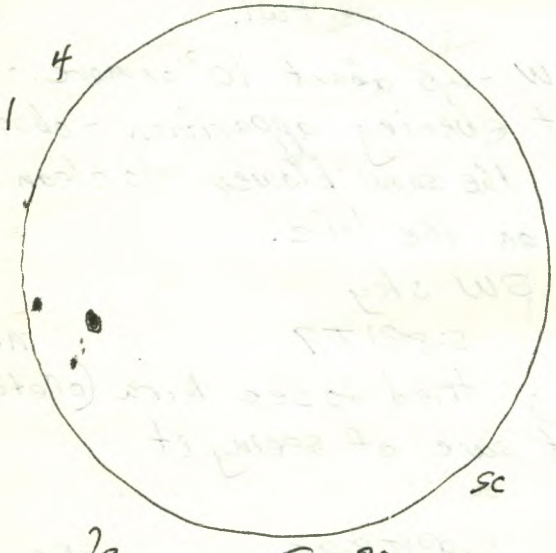
2g
35
RSN23

Jan. 25
19:15-19:20



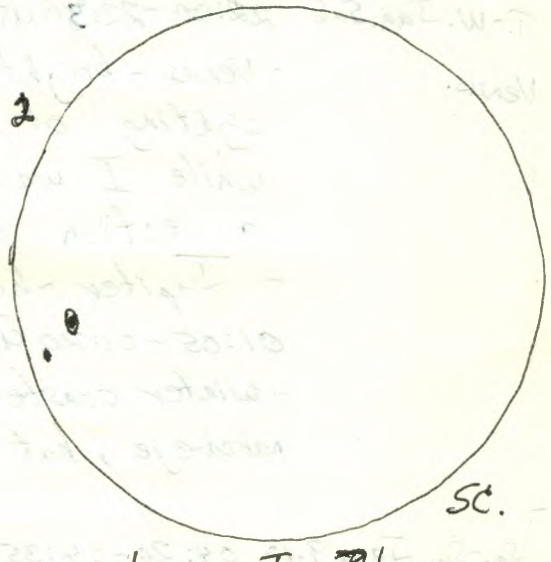
1g
10s
RSN20

Jan. 29.
18:35-18:40



2g
55
RSN25

Jan. 30
20:05-20:10 UT



1g
25
RSN12

Jan 31
19:20-19:25 UT

1999

M. Jan. 25 18:15-19:20 UT t C-8, 32, 28, 20. T.O.F.
Sun 2g 3s RSN23 Some haze - cirrus cloud.

M-T. Jan. 25-26 22:01-22:16 UT ice twl ne
- From sunset until about 15 min. later I observed and photographed the earth's shadow rising in the NE - at about 1 min. intervals. I also saw Venus in the WSW and the moon about 1 day after First Quarter high in the S.

T.-W. Jan. 26-27 05:30-06:00 UT t S? T2-4 cloud haze ne; C-8, 32
ne: moon and a few stars amid clouds
C-8: gibbous moon and star Aldebaran - about a degree from the moon. The moon was going to occult Aldebaran (α Tauri) later in the night - beginning about 07:49 UT as "seen" from this location, but the moon would be very low in the NW - about 5°-10° above the horizon and "among the trees". However, it was a cloudy night and "even cloudier" when I checked later. When I was observing, the moon was still about a degree from the star. They were up about 40° in the W.

F. Jan. 29 18:35-18:40 UT t C-8, 32, 28, 20, 15.5 T.O.F.
Sun 1g 10s RSN20

Sa. Jan. 30 20:05-20:10 UT t C-8, 32, 28, 20, 15.5 T.O.F.
Sun 2g 5s RSN25

Sa.-Su. Jan. 30-31 22:00-22:25 UT ice twl ne
While skating (for the first in a long time, probably more than a year or even much longer possibly) on a patch of ice I had cleaned off, I observed the almost-full moon in the ENE, Jupiter. and the rising earth's shadow after sunset at 22:08 UT, Venus in W and ^

Su. Jan. 31 19:20-19:25 UT t C-8, 32, 28, 20, 15.5 T.O.F.
Sun 1g 2s RSN12

Relative Sunspot Numbers

Date 1998	My Observation	AAVSO	SIDE Brussels
Jan. 14	21		
25	34		
Feb. 7	12		
8	11		
15	25		
21	14		
22	0		
25	34		
Mar. 15	65		
16	43		
24	40		
28	44		
Apr. 4	28		
5	42		
11	70		
1620 — 13	51		
14	50		
15	52		
17	0		
18	22		
21	14		
23	0		
27	12		
28	16		
30	30		
May 6	50		
1630 — 13	63		
15	67		
17	65		
18	16		
19	18		
23	18		
24	19		
30	15		
31	48		
June 1	30		
5	39		
9	49		
13	46		
15	22		
June 18	22		
19	30		
20	47		
21	55		
24	27		
1650 — 29	80		
July 2	92		
3	88		
5	59		
9	28		
10	41		
11	22		
12	40		
13	29.		
14	27		
15	18		
17	25		
18	38		
19	41		
20	47.		
21	65		
23	42		
24	68		
26	32		
Aug. 1	44		
1670 — 2	44		
3	35		
5	43		
8	70		
9	88		
16	76		
18	70		
19	69		
21	77		
22	67		
1680 — 24	55		
30	76		
Sept. 4	80		
5	64		
6	86		
7	79		
12	100		
13	85		
20	64		
29	22		
Oct. 20	44		
22	34		
23	12		
24	24		
Nov. 3	33		
Dec. 4	72		
9	108		
11	65		
13	81		
15	54		
16	46		
1700 — 17	46		
1999			
Jan. 11	11		
13	28		
17	84		
25	23		
29	20		
30	25		
31	12		

TELESCOPE MAGNIFICATION

OCULAR in	C-14(3910^{m}FL)	C-8(2000^{m}FL)	ASTROSCAN(445^{m}FL)
55mm	71 X	36.4 X	
40	97.8	50	11.1 X
36	108.6	55.6	12.4
32	122.2	62.5	13.9
28	139.6	71.4	15.9
26	150.4	76.9	17.1
25	156.4	80	17.8
21.5	181.9	93	20.7
20	195.5	100	22.3
19	205.8	105.3	23.4
18	217.2	111.1	24.7
17	230	117.6	26.2
15.5	252.3	129	28.7
15	260.7	133.3	29.7
13	300.8	153.8	34.2
12.7	307.9	157.5	35
12.5	312.8	160	35.6
12	325.8	166.7	37.1
9	434.4	222.2	49.4
8.8	444.3	227.3	50.6
8	488.8	250	55.6
7.4	528.4	270.3	60.1
7	558.6	285.7	63.6
5	782	400	89
4	977.5	500	111.3

TELESCOPE PARAMETERS

	C-14	C-8	Astroscan
FL	3910mm	2000mm	445 mm
D	354 mm	200 mm	105 mm
f/	f/11	f/10	f/4.24

USEFUL MAGNIFICATION (0.2D to 2D)

354 mm	200 mm	105 mm
71X - 708X	40X - 400X	21X - 210X

STELLAR MAGNITUDES FOR COMPARISON PURPOSES

0 Capella, Vega
1 Aldebaran
1.5 Castor
2 Polaris, Alpha Andromedae
2.5 Alpha Pegasi
3 Zeta Tauri, Gamma Ursae Minoris
3.5 Alpha Trianguli
4 Mu Andromedae
4.5 Nu Andromedae, Delta Ursae Minoris
5 Chi Cassiopeiae

Local Mean Sidereal Time

For 1999:

$L.M.S.T. = 6.^{h}614723504 + 0.^{h}0657098244d + 1.^{h}00273790934t - 5.^{n}11123737$

Longitude: W. 76^{o} 40' 06."818
$76.^{o}66856055$
$5.^{n}11123737$
$5^{n}\ 06^{m}\ 40.^{s}454532$

Latitude: N. 44^{o} 45' 32"
$44.^{o}758$