

LEO ENRIGHT LOGBOOKS

Volume
16

March 3, 2000
to
November 23, 2000

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16

FANCO



cahier **SCIENCE** book

PAPIER EPAIS — HEAVYWEIGHT PAPER — 100 PAGES

name. nom Leo Enright

subject. sujet Observing March 3, 2000 - Nov. 23, 2000

49-1092
FANCO
606 De Courcelle,
Montréal, Que. H4C 3L5



11" x 8.3/8" - 279 mm x 212 mm

Calendar 2000

January							February							July							August						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1			1	2	3	4	5							1			1	2	3	4	5
2	3	4	5	6	7	8	6	7	8	9	10	11	12	2	3	4	5	6	7	8	6	7	8	9	10	11	12
9	10	11	12	13	14	15	13	14	15	16	17	18	19	9	10	11	12	13	14	15	13	14	15	16	17	18	19
16	17	18	19	20	21	22	20	21	22	23	24	25	26	16	17	18	19	20	21	22	20	21	22	23	24	25	26
23	24	25	26	27	28	29	27	28	29	23	24	25	26	27	28	29	27	28	29	30	31						
30																											

AAVSO

AAVSO, 25 Birch Street, Cambridge, MA 02138, U.S.A.

Tel: 617-354-0484 ☆ Fax: 617-354-0665

Internet: aavso@aavso.org

WWW: <http://www.aavso.org>

2000

JULIAN DAY CALENDAR

2,450,000 plus the value given under each date



JULY

Sun	Mon	Tue	Wed	Thu	Fri	Sat
●	◐	○	◑	●		1
1	8	16	24	31		1727
2	3	4	5	6	7	8
1728	1729	1730	1731	1732	1733	1734
9	10	11	12	13	14	15
1735	1736	1737	1738	1739	1740	1741
16	17	18	19	20	21	22
1742	1743	1744	1745	1746	1747	1748
23	24	25	26	27	28	29
1749	1750	1751	1752	1753	1754	1755
30	31					
1756	1757					

AUGUST

Sun	Mon	Tue	Wed	Thu	Fri	Sat
◐	○	1	2	3	4	5
7	15	1758	1759	1760	1761	1762
6	7	8	9	10	11	12
1763	1764	1765	1766	1767	1768	1769
13	14	15	16	17	18	19
1770	1771	1772	1773	1774	1775	1776
20	21	22	23	24	25	26
1777	1778	1779	1780	1781	1782	1783
27	28	29	30	31	◑	●
1784	1785	1786	1787	1788	22	29

SEPTEMBER

Sun	Mon	Tue	Wed	Thu	Fri	Sat
◐	○	◑	●		1	2
5	13	21	27		1789	1790
3	4	5	6	7	8	9
1791	1792	1793	1794	1795	1796	1797
10	11	12	13	14	15	16
1798	1799	1800	1801	1802	1803	1804
17	18	19	20	21	22	23
1805	1806	1807	1808	1809	1810	1811
24	25	26	27	28	29	30
1812	1813	1814	1815	1816	1817	1818

OCTOBER

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
1819	1820	1821	1822	1823	1824	1825
8	9	10	11	12	13	14
1826	1827	1828	1829	1830	1831	1832
15	16	17	18	19	20	21
1833	1834	1835	1836	1837	1838	1839
22	23	24	25	26	27	28
1840	1841	1842	1843	1844	1845	1846
29	30	31	◑	○	◑	●
1847	1848	1849	5	13	20	27

NOVEMBER

Sun	Mon	Tue	Wed	Thu	Fri	Sat
◐	○	◑	1	2	3	4

DECEMBER

Sun	Mon	Tue	Wed	Thu	Fri	Sat
◐	○	◑	1	2	3	4

Observing Log

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

e.g.

Time:

UT = Universal Time
 n = night
 M = Morning
 P = forenoon
 a = afternoon
 e = evening

Place:

OO = Oso Observatory
 nd = north deck
 sh = shoreline of lake
 ss = solar station
 t = table at solar station
 in = indoors
 r = roof of house
 ice = ice on lake
 sd = south deck

Sky Conditions:

S = Seeing
 T = Transparency
 0-10 scale: 0 = nil or extremely poor;
 10 = absolutely superb
 CM = crescent moonlight
 gml = gibbous moonlight
 fml = full moonlight

Instruments:

C-14 = Celestron 14-35.5cm SCT Y = yard
 C-8 = Celestron 8-20cm SCT
 Ast = Astroscan 2001 - 10.5cm RFT
 12½" = Denise's 32cm Meade Dobsonian
 20x100b = 20x100 binoculars.
 11x80b = 11x80 binoculars
 9x ~~80~~ b = 9x ~~80~~ binoculars
 7x 35b = 7x 35 binoculars

EG = Easy Guider
 EGf = Easy Guider, lens forward
 EGb = Easy Guider, lens back

32 = 32mm ocular
 32-2 = 32mm 2" ocular

K = Kellner
 O = Orthoscopic
 Ko = König
 WA = Wide Angle
 P = Plossl

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

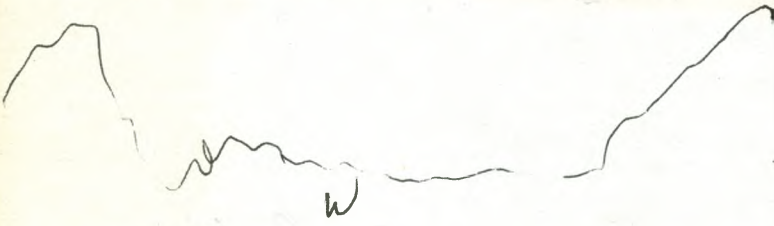
Objects:

PN = Planetary Nebula
 GC = Globular Cluster
 OC = Open Cluster
 SG = Spiral Galaxy
 EG = Elliptical Galaxy
 D = Double Star
 LPV = long period variable

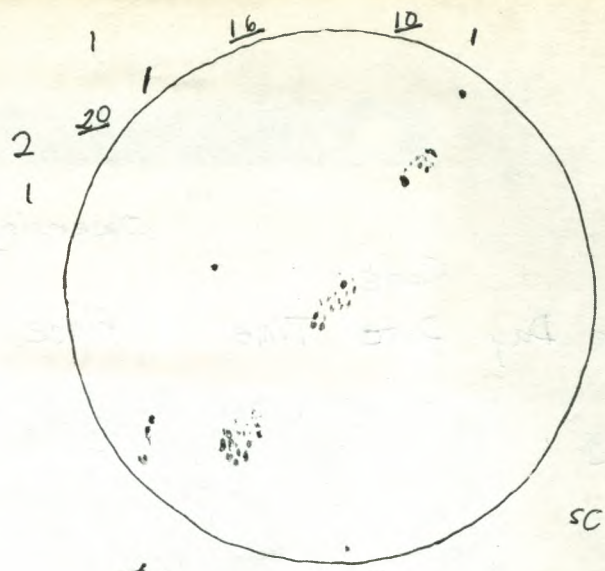
Atlases:

U = Uranometria
 U210 = Uranometria Chart 210
 AAUSO = AAUSO Variable Star Atlas
 Cam = Cambridge Star Atlas 2000
 MSA = Millennium Star Atlas

• Saturn 10 degrees
 • Jupiter 18 degrees
 • Mars



F.S. Mar. 3-4 Array of 3 planets
 23:55 UT - as seen from Bedford



89
 52 S
 RSN 132
 Mar. 5.
 20:25-20:30 UT

2000

F.S. Mar. 3-4 03:20-03:55 UT y S-8(R)T9-9.5 ne; 20x100b

ne:- winter and spring constellations. Earlier in the evening I had observed the line-up of 3 planets in the western sky, while I was outside the church in Bedford - Saturn, Jupiter and Mars. (See diagram.)

20x100b: M42 and other areas in Orion; M50 and other areas in Milky Way near Sirius; areas of Virgo near stars γ , δ , ϵ , θ , and σ ; areas of Corvus, areas of Pyxis but not sure of seeing area of TPyxidis.

Su. Mar. 5 20:25-20:30 UT t

sun 8g 52s RSN132

C-8, 32
T.O.F.

S-M. Mar. 5-6 01:30-04:40 UT t and y S-8(?)T9-9.5 C-8, 15.5; 20x100b ne c. Denise and Joe and Bob from across the road.

t, C-8: Jupiter and 3 of its moons, Saturn and Titan.
20x100b: M42, M43, looked for area of R Lep but did not see it because it was low, behind the trees, M41, M50, M46, M47, M45, Ceres (See S. & T. Mar. 2000 p. 109 and U194) NW of ϵ Vir and δ SW of 29 and 28 Com, Pallas (see S. & T. Mar. 2000, p. 110 and U274) N. of M47 at about R.A. $7^h 36.4^m$ Dec. -11.8° , some brief attempts to see Iris (See S & T Mar 2000 p. 110 and U186) but was not sure of seeing it.

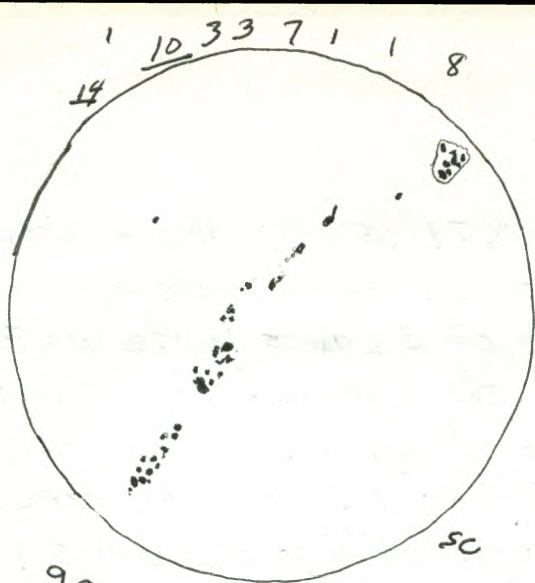
ne: constellations, slight glow in N that may have been Aurora, which seemed to be slightly reddish at times.

M-T. Mar. 6-7 23:20-23:30 UT outside Century P.S. in Ottawa twl 10x50b

I searched near the western horizon for the slim possibility of seeing a very young crescent moon. The clear horizon was not very extensive because of buildings.

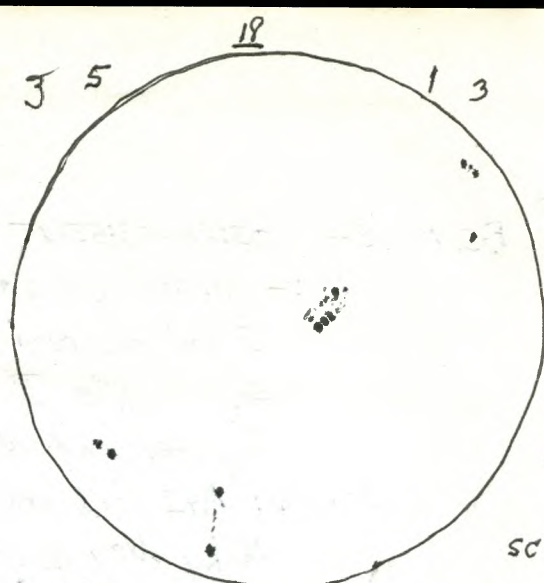
about 00:30 - 01:20 UT near front door of Century Public School in Ottawa Ast, 8 - showed Saturn and Jupiter along with 3 moons that were visible to a group of Beavers (about age 6 to 8) who had a meeting just before at

"missed very young moon"



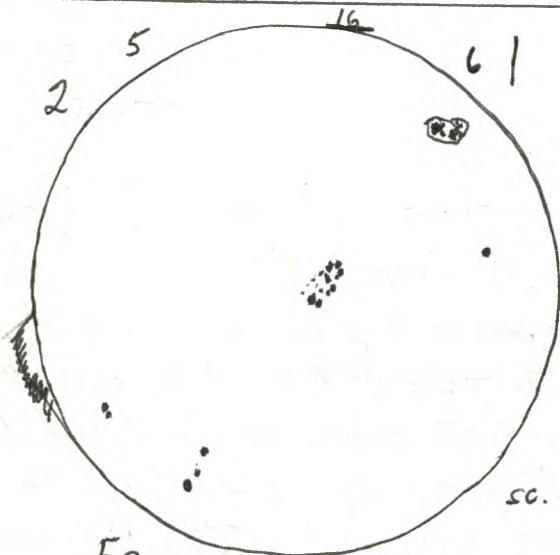
9g
48s
RSN 138

Mar. 8
19:15-19:20UT



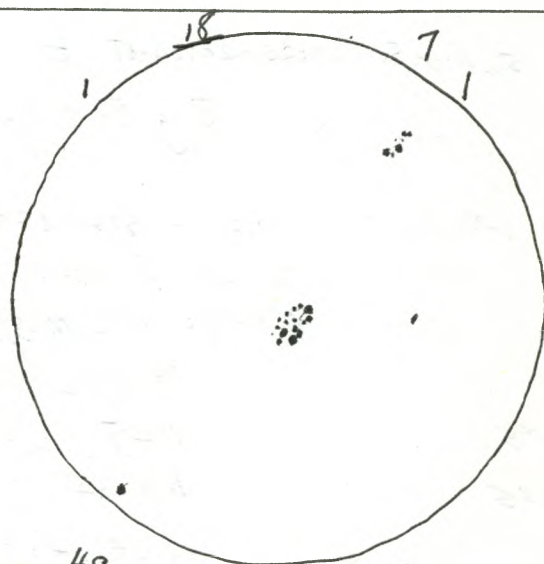
5g
30s
RSN 80

Mar. 12
21:15-21:20UT



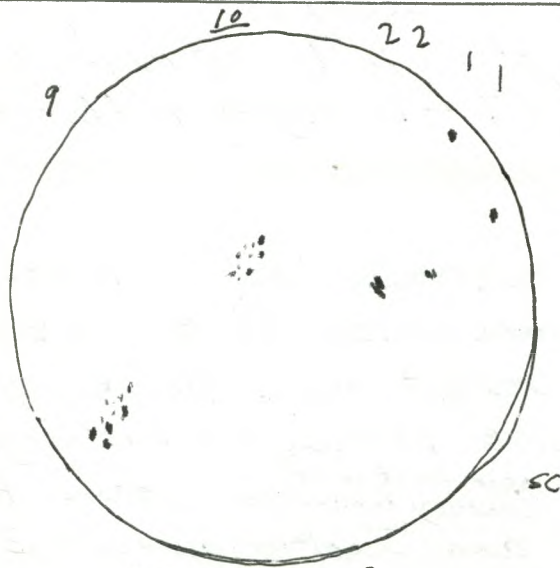
5g
30s
RSN 80

Mar. 13
19:15-19:20UT



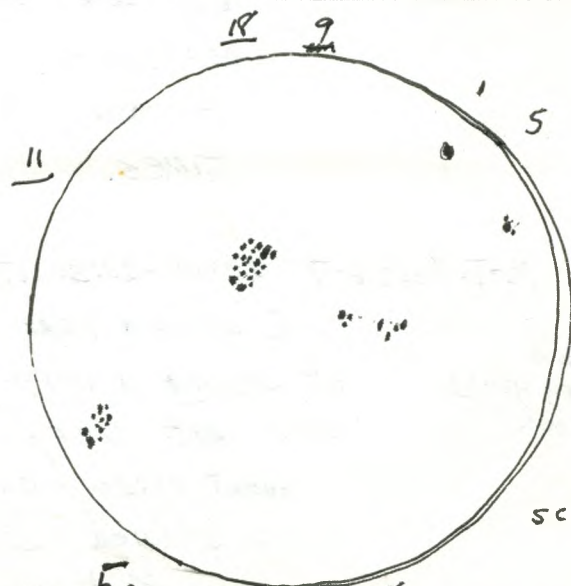
4g
27s
RSN 67

Mar. 14
20:40-20:45UT



6g
25s
RSN 85

Mar. 17



5g
44s
RSN 94

Mar. 18
16:55-17:00UT

which Denise gave a short talk and showed some slides and had the boys do the "dot-to-dot" constellation exercise. She had been invited by her friend, Heather, whose son was in the Beavers group. Before the meeting we ate with them at a Swiss Chalet Restaurant after visiting for a while at their place

- 03:00 - 04:20 UT y S(8)(?) T9-9.5 ne; 20x100b.
ne: constellations; glow in N which might have been Aurora

Pallas
Ceres

20x100b: M41, M46, M47, Pallas - just a little N. of where it was the previous night (See above.), Ceres - a little NW of where it had been the previous night (See above.), R Learchis - about mag. 7, areas of Taurus but T Pyxidis not seen, areas of Corvus but R Corvi too faint to be seen, several areas of Cor Ber.

T.-W. Mar. 7-8 03:55 - 04:10 UT y S-8 T7-8 (some clouds) ne
- winter and spring constellations

W. Mar. 8 19:15 - 19:20 UT t C-8, 32
Sun 9g 48s RSN 138 T.O.F.

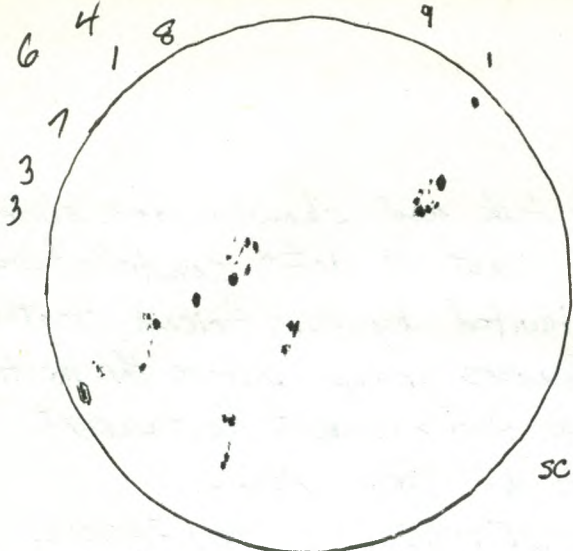
Sa. Mar. 12 21:15 - 21:20 UT t C-8, 32, 28
Sun 5g 30s RSN 80 T.O.F.

M. Mar. 13 19:15 - 19:20 UT t C-8, 32, 28
Sun 5g 30s RSN 80 T.O.F.

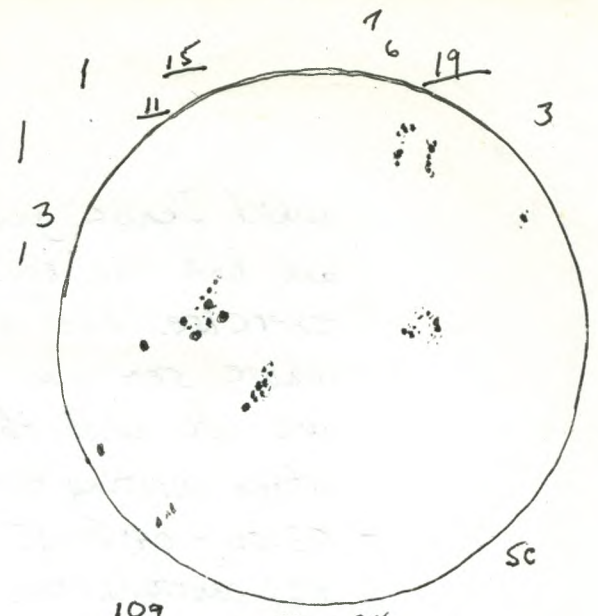
Tu. Mar. 14 20:40 - 20:45 UT t C-8, 32
Sun 4g 27s RSN 67 T.O.F.

F. Mar. 17 20:55 - 21:00 UT t C-8, 32
Sun 6g 25s RSN 85 T.O.F.

S. Mar. 18 16:55 - 17:00 UT t C-8, 32
Sun 5g 44s RSN 94 T.O.F.



9g
425
RSN132
Mar 23
20:10-20:15UT



109
675
RSN167
Mar. 24
18:20-18:25

2000

W-Th. Mar. 22-23 01:57-02:45 UT y S-8(?) T8 gm after 02:11 UT-mr ne; 20x100b
 ne: winter and spring constellations; mag. 1 meteor near Procyon - short
 20x100b: M42; area of NGC 2244; areas of Milky Way and
 of constellation Pyx

Th. Mar. 23 20:10-20:15 UT € C-8, 32
 sun 9g 42s RSN 132 T.O.F.

Th.-F. Mar. 23-24 00:30-02:20 UT 00 S-8(?) T9-9.5 ne; C-8, 19; 20x100b
 ne: constellations of winter and spring; zodiacal light up as far as
 the Pleiades or even farther.

z.l.
 C-14: Jupiter and 4 moons; Saturn and Titan; the
 Trapezium in M42.

20x100b: R Lep (faint at about 8 mag); RX Eri (very faint
 at about mag. 10); RX Lep (quite bright at about mag. 4);
 M42, M41, M78, NGC 2244 and part of the Rosette
 Nebula, M45 (the Pleiades); M44 (the Beehive Cluster);
 Keble's Cascade of stars ^(U18) in Cam; R Leonis (at about
 mag. 6.5); δ Vir and area near γ Vir; M65 and M66
 and area in Leo, S. of θ Leonis (U 191); areas of
 Corvus; M51 in CrV; area of T Pyxidis, but the star was
 not seen.

6v

Mar. 24 18:20-18:25 UT t C-8, 32
 sun 10g 67s RSN 167 T.O.F.

Mar. 24-25 03:50-04:00 UT y S-7 T7 1c

iv
 -constellations; Algol near minimum - short session after
 returning from Kingston after hearing the talk by Dr. Judith
 Irwin called "The Amazing Technicolour Universe."

Sa-Su. Mar 25-26 - 01:05-03:40 UT y S-8, T8-9 ne; 20x100b

ne: -constellations; meteor near Procyon with short train and
 about mag. 2; glow in N. possibly Aurora

RX Lep

20x100b: - M41, M42, NGC 2244 and area nearby; RX Lep

N ←

ε .

γ (495 & 498)

β 2.79

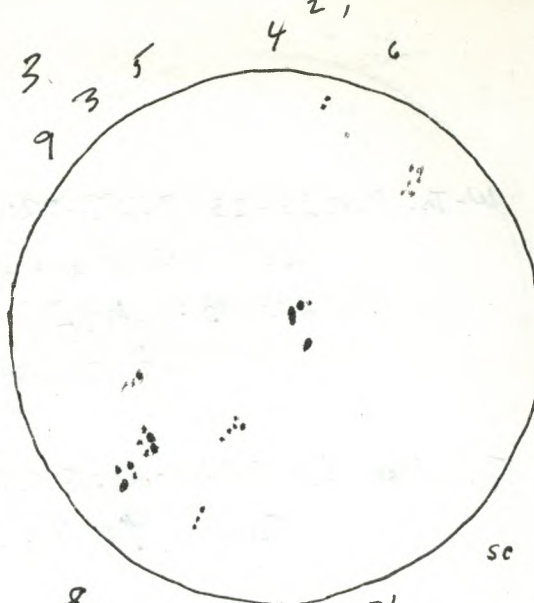
υ Her

γ 2.24

Head of Draco

Eastern Horizon

→ E



8g
33s
RSN113

Mar. 31
20:55-21:00UT

sc

2000

UX Mon

FW Mon

TU Mon

Pallas

TCor Bor

RCor Bor

SSVir

74

and area (star at about mag. 6.5); M48 and area including UX Mon (See Burnham, p. 1186; mag. 7.9-8.8, per: 5.905 days, Ecl. Bin.) at about mag. 8. and FW Mon (See Burnham, p. 1186; mag. 9.5-10.5, per.: 3.874 days, Ecl. Bin.) at about mag. ~~8~~ 10(?) (U275) - both of them WSW of M48; TU Mon (See Burnham p. 1186, mag. 9.0-10.9, per.: 5.049 days, Ecl. Bin.) at about 9(?) (U230) - located NW of M48; asteroid Pallas at about mag. 8.5(?) at about R.A. 7^h49^m Dec -3.6 (U230) - WSW from TU Mon; area of TCor Bor including the star faintly visible, RCor Bor, at about mag. 7.5(?); SSVir (See Burnham p. 2047: mag. 6.0-9.6, per.: 355d, LPV) (U238) at about mag. 9(?); area of 3C273 in Virgo (see U238); areas in Corvus near RCorvi, but star not seen (U328)

Su.-M. Mar. 26-27 03:40-04:40 UT y 5-8 T 8.5-9 ne; 20x100b

ne: constellations; 1 bright meteor in or near Gemini - about mag. 2; glow in N. that might have been Aurora - up about 20°-25°
20x100b: area of M48; TU Mon and area (See above.); RCor Bor and TCor Bor and areas; M92; M13; area of RCorvi, but star was not seen; area of SSVir.

F. Mar. 31 20:55-21:00 UT t

sun 8g 33 s RSN 113

C-8, 32

T.O.F.

F.-S. Mar. 31-April 02:30-04:50 UT y 5-8(?) T 9-9.5 ne; 20x100b

ne: constellations; glow - faint - in N that may have been Aurora

20x100b: M46, M47, NGC 2244 and Rosette Nebula and area, area of TPyxidis, RCorvi - barely visible - probably at about mag. 11. (See Burnham p. 717 mag. Var. 6.7-14.4 per.: 317d LPV); R Leonis - mag. 7(?) due to reach max. at mag. 5.8 on Apr. 23; V Mon - at about mag. 8.5(?) due to reach max. on Apr. 13 (See Burnham p. 1185 - mag. Var. 6.3-13.7 p. 334d. LPV); found by "hopping"

TPyxidis area

R Corvi

R Leonis

V Mon

4v + 7

News Item from "Toronto Star", Apr. 2, 2000

— 2 "nearby, sunlike stars recently discovered to have planets orbiting them — planets smaller than Saturn:

(a) — HD 16141 α $2^{\text{h}} 35^{\text{m}} 19.9^{\text{s}}$ $\delta -3^{\circ} 33' 37''$
2000 coordinates:
 $V=6.83$ $d=53$ pc
(according to Sky Cat. p. 52)

(b) — 79 Ceti: This star does not seem to be listed in Sky Catalogue p. 52, though 78 Ceti and 80 Ceti are listed on that page.

(a)'s coordinates appear very near 79 Ceti (U 220).

2000

TCor Bor
RCor Bor

R Boo

W Boo

R Vir

SV

from the Rosette Nebula; TCor Bor and area; RCor Bor and area - the star at about mag. 7.0(?) VCor Bor - perhaps at mag. 8.0(?) (See Burnham p. 698, mag. var. 6.9-12.5, per. 358d., LPV), (See U113); R Boo (See Burnham p. 300: mag. var. 6.7-12.8; per. 223d., LPV) at about mag. 10.0(?) - W. from E Boo (U152) and near W Boo (Burnham: - Irreg. var. 5.0-5.5) M44; M67; VCan at about 9(?) - found by "star-hopping" from M44 (Burnham, p. 340) (mag. var. 7.5-13.0 per. 272d., LPV) (See U141); area of UCan near M44 but star was not seen for sure (Burnham: mag. var. 8.7-15.0, per. 305d., LPV); R Vir area (Burnham, p. 2047: mag. var. 6.2-12.1, per. 146d., LPV) (U194) found by "star-hopping" from E Vir to 32 Vir and 31 Vir, star - quite faint but predicted to be up to mag. 6.9 on May 28.

S.-M. Apr. 2-3 ~~23:00~~:15-00:17 UT t twl C-8, 15.5

Jupiter and 2 moons E. of disk: I and III.

00:30-00:32 UT nd twl C-8, 15.5

Jupiter low near trees in WNW - hoping to see the shadow transit of II (Europa), but did not notice it.

01:05 - 01:10 UT y and nd nearend of twl ne

Fairly strong glow in N. - up to 20° or more - probably Aurora. Clouds intensified making it difficult to

Auroral glow.

see the extent of the Aurora. There seemed to be some hints of spikes in N. to NW, especially toward the NW.

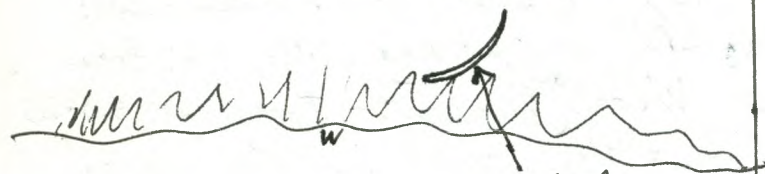
W.-Th. Apr. 5-6 ^{Silver Lake} 23:40 - 00:40 UT Provincial Park twl ne; 135mm camera lens

I drove to Silver Lake Provincial Park with Lorne Jenkins hoping to see the slender crescent moon near the horizon and the grouping of 3 planets: Jupiter, Mars, and Saturn, which might have been seen above the moon in the W. sky. The weather did not cooperate fully; dense clouds persisted. While back in the park I did not see the moon or planets in the narrow band of

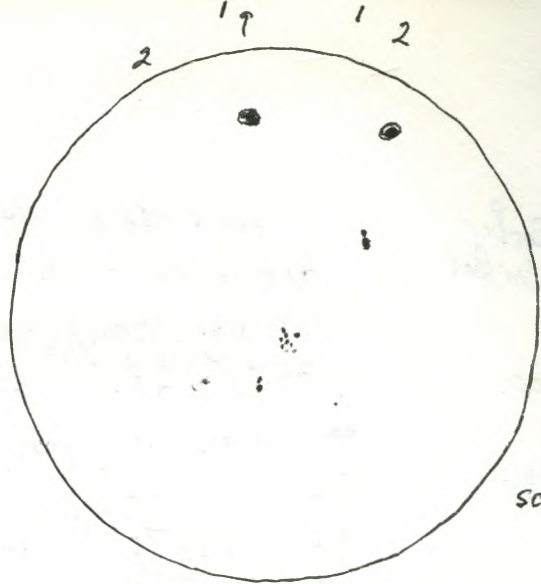
N.M. Apr. 4 18:12 UT

Scene; Apr. 6 00:40 approx
(About 30 1/2 hours later)

dense clouds

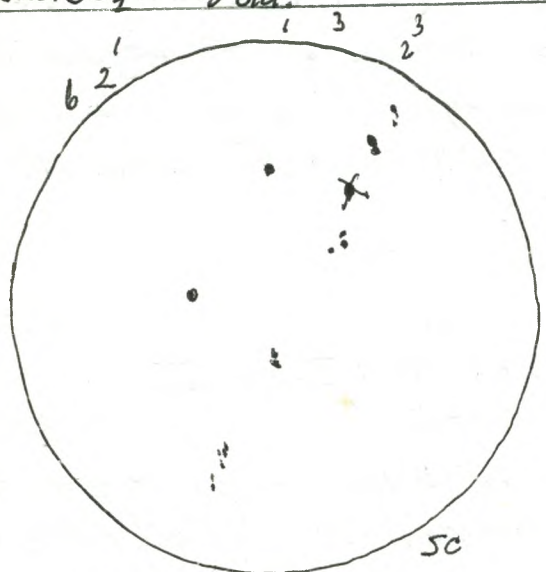


Apr. 5-6 00:40 UT Scene looking westward
Moon is about 30 1/2 hours old.
over Silver Lake from Hwy #7.



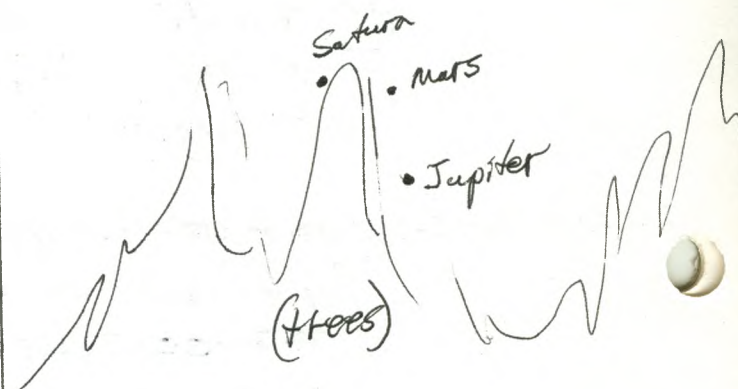
5g
15s
RSN 65

Apr. 10
19:55-20:00 UT

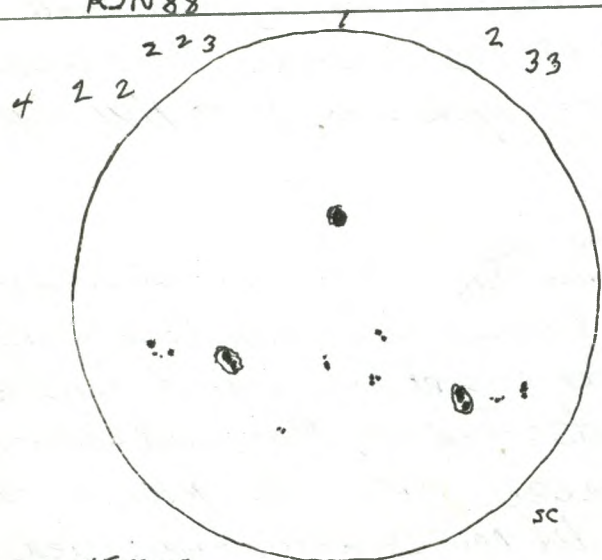


7g
18s
RSN 88

Apr. 12
19:45-19:50 UT



W Apr. 12-13 00:45 UT
3 planets low in the WNW



~~15g~~
10g
24s
RSN 124

Apr. 13
15:00-15:05 UT

2000

30²hour
crescent moon

clear skies low in the west, though I repeatedly scanned it with the camera with the 135mm lens. After leaving the point of land in the park at about 00:30 UT, I walked to the car which was near Highway #7, and then at about 00:40 UT, only about 9 minutes before moonset, Lorne pointed out the thin crescent moon just above the horizon. It was an interesting sight, exhibiting the "full moon" effect or appearing fairly large. (See diagram.) After taking Lorne home and returning home, I noticed that the skies had cleared enough that I could see Jupiter and some stars.

M. Apr. 10 19:55 - 20:00 UT t
sun 5g 15s RSN 65

C-8, 32
T.O.F.

W. Apr. 12 19:45 - 19:50 UT t
sun 7g 18s RSN 88

C-8, 32
T.O.F.

W.-Th. Apr. 12-13 00:45 - 00:50 UT y (Eol observatory) twl; gml 9x63b
- 3 planets, Mars, Jupiter, and Saturn low in WNW during twilight with gibbous moon high in S. The 3 planets were close to being in one field of view of the binoculars

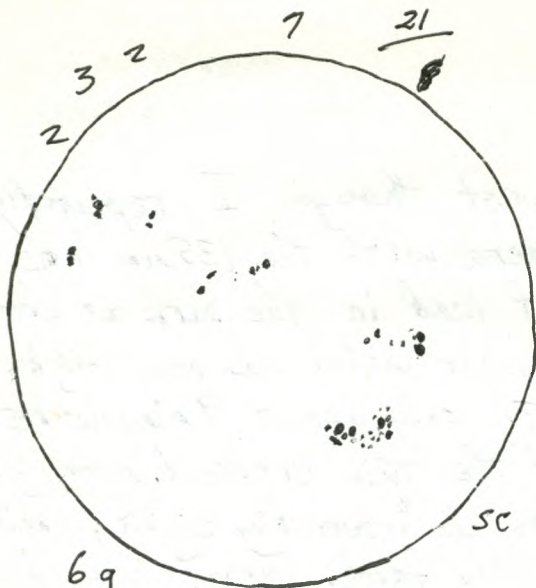
3 planet
grouping.

Th. Apr. 13 15:00 - 15:05 UT t
sun 10g 24s RSN 124

C-8, 32
T.O.F.

S.-M. Apr. 23-24 02:00 - 03:15 UT y 5-8 T8-9 ne; 9x63b

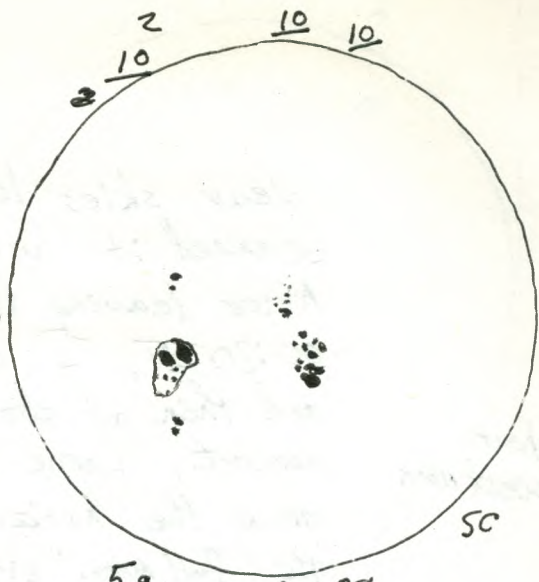
- ne: observed constellations on what seemed like the first clear night in a long time because of the many nights of cloudy and rainy weather; several meteors, one short but bright one in lower part of constellation Leo, of mag. about -2.
- 9x63b: M44, M35, M36, M37, M38, M13 Rho¹ Leonis - about mag. 6.0 (on date that had been predicted for its max. in S. & T - actually Apr. 23.), Elyrae, areas in Cas, R Car Bor.



6g
43S
RSN103

Apr. 25
15:25-15:30UT

SC



5g
34S
RSN84

Apr. 28
19:25-19:30UT

SC

2000

M.-T. Apr. 24-25 02:00-03:25 UT y 5-8 T 9-9.5! ne; 20x100b

ne: Constellations

20x100b: RCor - bright, about mag. 7.5 (S.V.T.: to be at max. of 7.5 on May 2); RLeonis - bright about mag. 6.0 (S.V.T.: to Apr. 23 - 2 days ago - at mag. 5.8); NGC 2392, the Eskimo Nebula, near δ Gem (U139), the nebula being small and faint; area of GC NGC 2419 in Lyax, N. of Castor (U100) but could not see the very faint globular; some areas in Virgo.

T. Apr. 25 15:25-15:30 UT t

C-8, 32

Sun 6g 735 RSN 103

T.-W. Apr. 25-26 00:30-04:30 UT 00 twl; 58 T 9.5-10! ne; C-14, 32ko; n

ne: constellations; gradual appearance of stars during twilight

C-14: NGC 2392 (Eskimo Nebula) PN near δ Gem (U139); M13! and nearby galaxy ^{NGC} 6207 (U114)

20x100b: M35 and nearby NGC 2158 (U136, U137), M36, M37, M38, RLeonis - near max. at about mag. 6.0; RCorvi - near max. at about mag. 7.0.; TCorBor and area; RCorBor - bright at about mag. 7.5; δ Vir - bright at about mag. 8.0 - and area; α Lib and area (U288); β Lib and area (U289) including FZ Lib - bright - at about mag. 7.5(?)

Th.-F. Apr. 27-28 03:55-04:15 UT nd 58 T 8-9 ne with Denise

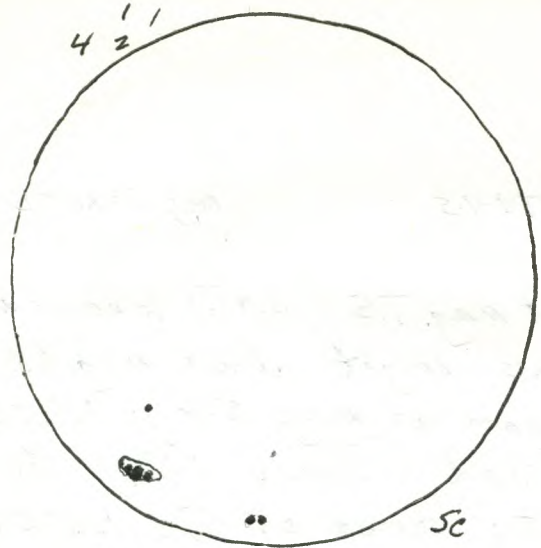
- constellations; Aurora in N. moderately intense and up 10° to 20° , some hints of colour - yellows, or slightly greenish - more intense than we had seen in quite a while

F. Apr. 28 19:25-19:30 UT t

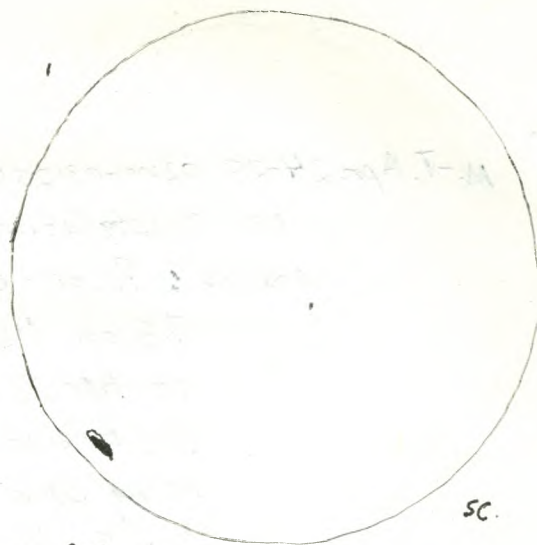
C-8, 32

Sun 5g 345 RSN 84

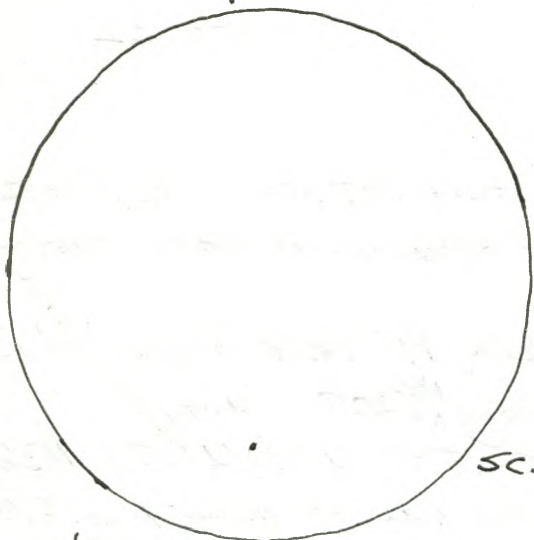
T.O.F.



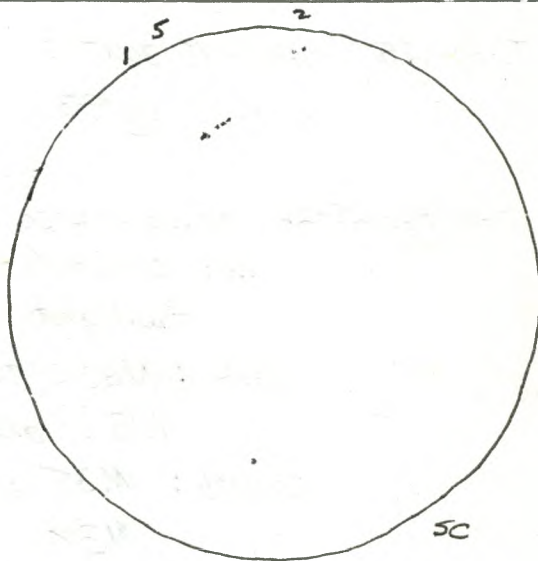
49
85
RSN 48
May 2
20:00 - 20:05 UT



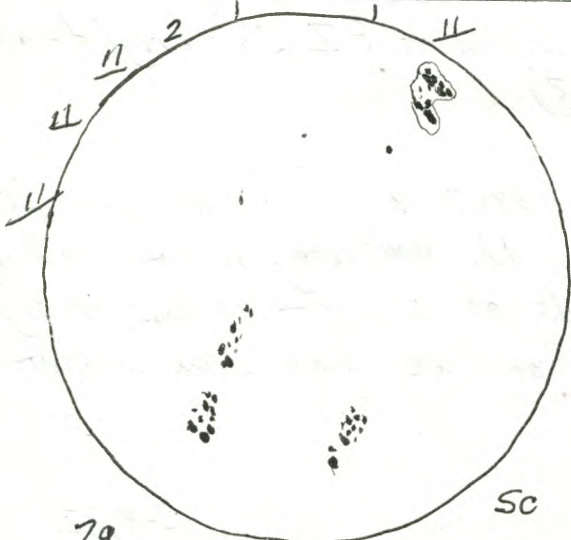
29
25
RSN 22
May 3
18:40 - 18:45 UT



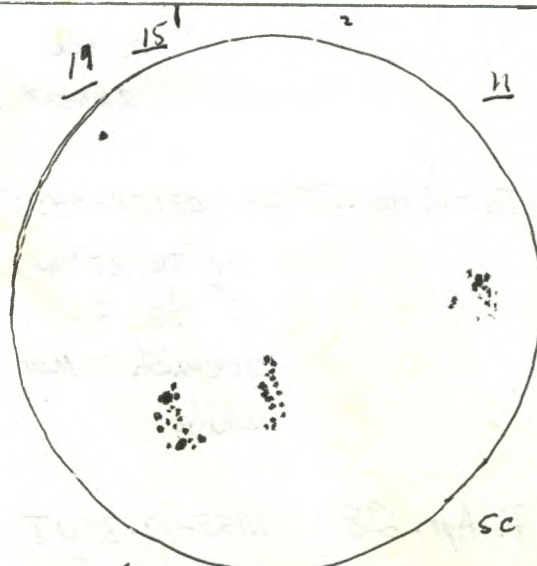
19
15
RSN 11
May 6
21:15 - 21:20 UT



39
85
RSN 38
May 7
19:25 - 19:30 UT



79
485
RSN 118
May 12
19:40 - 19:45 UT



59
485
RSN 98
May 16
13:55 - 14:00 UT

2000

Tu. May 2 20:00-20:05 UT t
Sun 4g 8s RSN48

C-8, 32
T.O.F.

T.-W. May 2-3 01:25-03:25 UT y twl; later 5-8; T 8-8.5 ne; 20x100b
ne: Constellations; one meteor in Corvus, mag. 2.

20x100b: RCorvi - bright - about mag. 6.5, SS Vir and area;
R Leonis - very bright - about mag. 6.0; T Cor Bor and area;
R Cor Bor and area; Elyrae; M57 and area in Lyra;
areas in Gemini.

W. May 3 18:40-18:45 UT t
Sun 2g 2s RSN22

C-8, 32
T.O.F.

W.-Th. May 3-4 03:18-04:00 UT y 5-8; T 8-9 ne
- constellations of late spring

Sa. May 6 21:15-21:20 UT t

Sun 1g 1s RSN11 (Denise saw 2 moor spots and 1 in another group.)
C-8, 32
T.O.F.

Sa.-Su. May 6-7 03:35-03:55 UT y
- constellations of spring

5-8(?) T 8-8.5 ne

Su. May 7 19:25-19:30 UT t
Sun 3g 8s RSN38

C-8, 32
T.O.F.

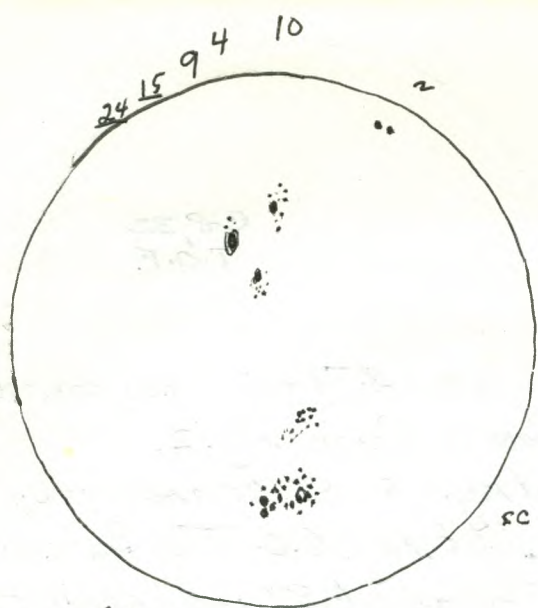
F. May 12 19:40-19:45 UT t
Sun 7g 48s RSN118

C-8, 32
T.O.F.

Th. May 16 13:55-14:00 UT t
Sun 5g 48s RSN98

C-8, 32
T.O.F.

W.-Th. May 17-18 01:00-02:20 UT Gould Lake Conservation Area ^{telescopes} Pml. Stargazer Steve 6 and 4"
- After giving a guided tour of the Hallett Crater to the second group of students who were attending a



69
645
RSN124

May 19
19:45-19:47UT

one-week astronomy program at Queens run by Dieter Brueckner (the previous one was one week earlier), I joined them for a campfire and "hot-dog" lunch at Gould Lake. There were about 19 or 20 students and one other supervisor with Dieter. The moon was just a few hours from "Full". Using 2^{or 3} of the 4 telescopes that the group had assembled, I observed lunar craters, Alcor and Mizar, and the area near Vega looking for Elyrae but not being sure of seeing the "double-double". Clouds were a hindrance in observing some areas of the sky, even though they were not as dense or as widespread as the previous Wednesday night when they had almost completely prevented any viewing, even though I had taken, and demonstrated the use of, my 20x100 binoculars.

F. May 19 19:45-19:47 UT t C-8, 32
sun 6g 64s RSN124 T.O.F.

F.-S. May 19-20 01:00-02:20 UT y twl; fml (after moonrise ne
- spring constellations and moon among trees in E as it rose
and later after it rose.

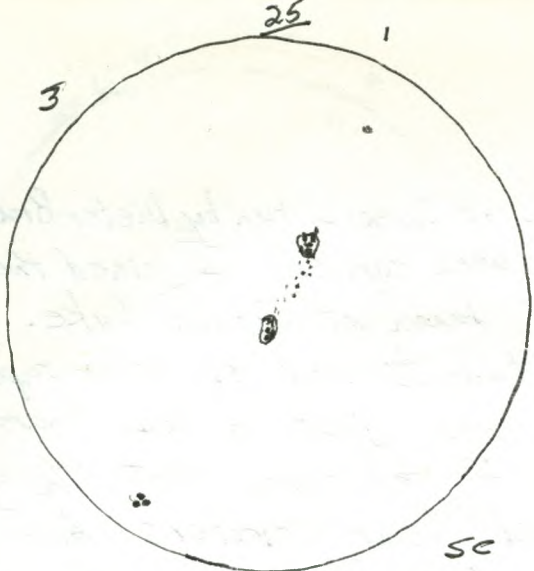
Su.-M. May 21-22 02:30-03:40 UT y S-8(?) T 6-7 (then overcast) ne; 20x100b
ne: constellations

R Cor
R Leo

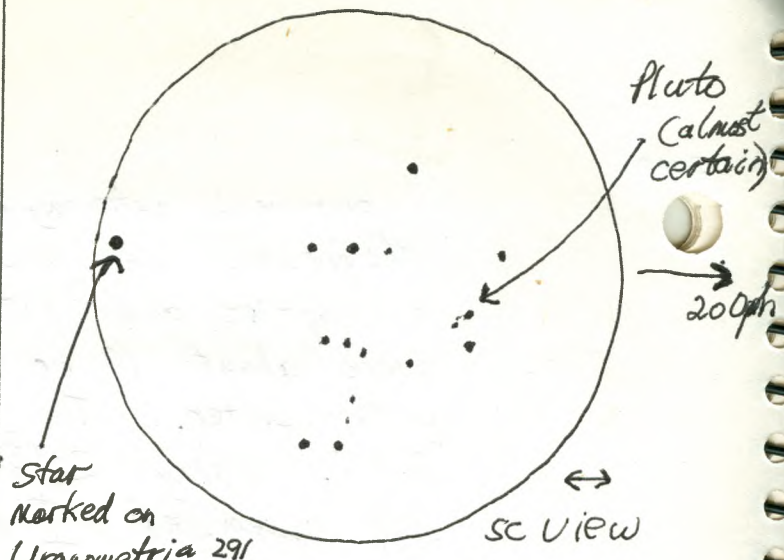
20x100b: R Corvi - about at mag. 8.0; R Leonis - bright still at about mag. 6.0. Clouds moved in at about 02:45 UT, but I stayed out for some time hoping that the skies would clear up again. It remained overcast.

S.-M. May 28-29 03:15-03:40 UT y S-8(?) T 8.5 but some cloud 20x100b
- R Leonis - bright at about mag 6.5; R Corvi - about mag 8.0;
areas of Ophiuchus, Virgo, Libra, and Leo.

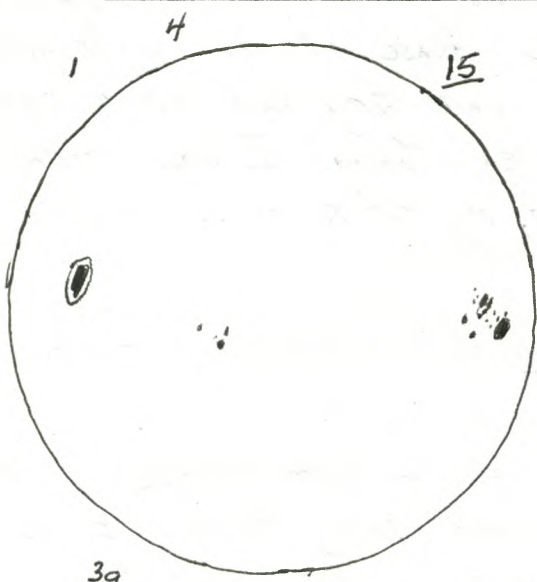
Clouds moved in, mainly in the E. at first, but then the sky became almost completely overcast. There was some glow in the N. that might have been Aurora.



39
295
RSN59
May 29
20:20-20:25 UT



Star marked on
Uranometria 291
R.A. $16^h 45^m .6$
Dec. -10.9
Area of Pluto
May 29-30, 06:00 UT



39
205
RSN50
June 3
14:55-15:00 UT

2000

M. May 29 20:20-20:25 UT t

C-8, 32
T.O.F.

Sun 3g 29s RSN59

M.-T. May 29-30 02:50-06:30 UT 00 58 T9-9.5 20x100b; C-14, 32K, 32P, 19

RCor
RLeo

20x100b: RCorvi, at about 8.0 mag.; RLeonis, still bright at about mag. 6.5, areas in Ophiuchus near location of Pluto near ζ Oph and 20 Oph (U291), M8, M20, M107 near ζ Oph, M22, M28, M21, M11, areas of the Summer Milky Way

Pluto

C-14: looked carefully for Pluto in Ophiuchus and was almost certain of seeing it - starhopping from ζ Oph and 20 Oph (See U291) and then w. from 20 Oph (See S. & T, Mar. 2000, p. 111) to a distinctive pattern of 3 stars in a row. Pluto was listed at mag. 13.7. The Sky and Telescope map was very good because it showed stars down to mag. 15! The object I was quite sure was Pluto was brighter than an object near it on the S & T map. That object was not shown on the O.H. map. I also used the 19mm eyepiece for 206x; it was good. It did not seem to be helpful to use the 13mm eyepiece (301x) or the 8mm (489x), or in the other direction the 40mm (98x) or the 55mm (71x). The best were the 32mm (122x) and the 19mm (206x)

Sa. June 3 14:55-1500 UT t

C-8, 32
T.O.F.

Sun 3g 20s RSN50

Sa.-Su. June 3-4 00:35-01:40 UT Silver Lake Provincial Park twl Camera, 200mm lens; 10x25b

Deise and I scanned the western sky hoping to see Mercury and the crescent moon, but there were clouds in the western sky, at least in a large part of the western sky. Briefly I thought I saw part of the crescent moon in a "split" in the clouds. There was a

Pollux • • Castor

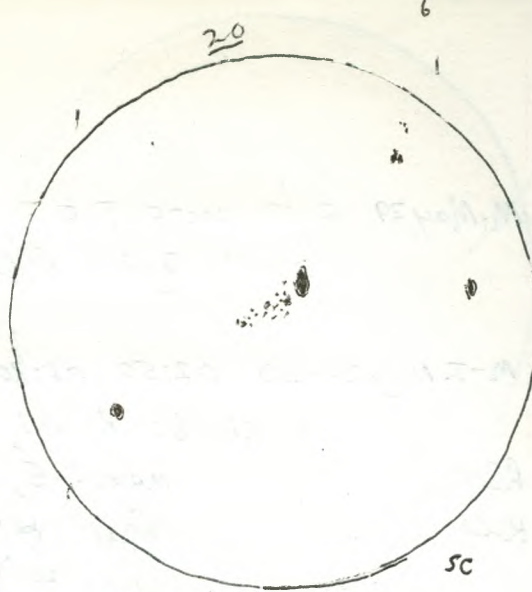
Capella

• Mercury



W Silver Lake WNW NW

View to WNW at 02:00UT June 5
from MTO Rest Area at Silver Lake



49
288
RSN68

June 7
17:50-17:55UT

Fairly large opening in an area of sky south of where we thought we would see the crescent moon, but the clouds moved very slowly, or seemed to be almost motionless for a fair while. We saw Castor and Pollux naked-eye from near the road before we left.

S.-M. June 4-5 01:00 - 02:30 UT ^{Silver Lake} MTC Rest Area twl ne; Camer, 200mm lens

From about 20 minutes after sunset at 00:43 UT until about 30 minutes before the end of astronomical twilight, I viewed and photographed the WNW sky from MTC Rest Area at Silver Lake. The sky was superbly clear! The crescent moon was soon visible higher than I had expected and then Pollux and Castor and then Mercury - quite low - up only about 4° at first. I watched almost until it disappeared behind the distant trees. (See diagram on facing page.)

Mercury

04:00 - 04:45 UT y S(?) T9 ne

- constellations; glow in N. up 20° to 30° - probably Aurora. Neighbours' lights made observing less than ideal, but they seemed to be moving in furniture.

W. June 7 17:50 - 17:55 UT t
Sun 4g 285 RSN68

C8, 32
T.O.F.

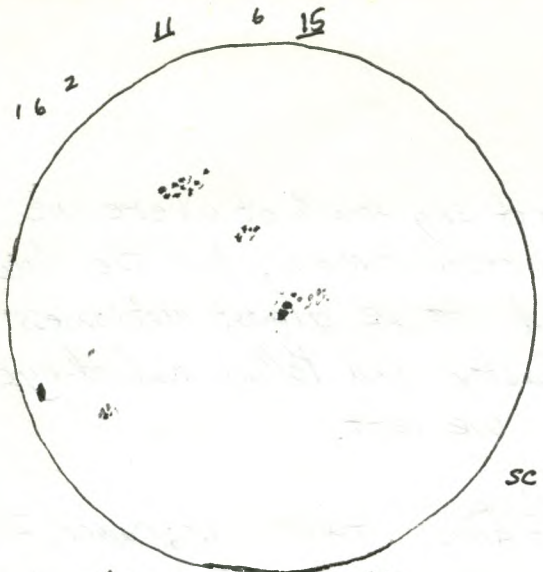
M.-T. June 12-13 02:50 - 04:10 UT y S(?) T5-6 (clouds, gmb.) ne

- bright meteor

- probable Perseid meteor

- constellations; a bright meteor \rightarrow downward in Oph and/or Sgr at about mag. -5 when the modest "explosion" occurred at the end of its trail; another meteor \rightarrow WSW and almost overhead, in Her - one that seemed to be a Perseid from both its direction and speed - very fast. There appeared to be a glow in the N that may have been an Aurora

Th.-F. June 14-15 03:00 - 03:15 UT y S(?) T4-gmb, some twl, numerous clouds ne
- some bright stars and constellations (perhaps), and



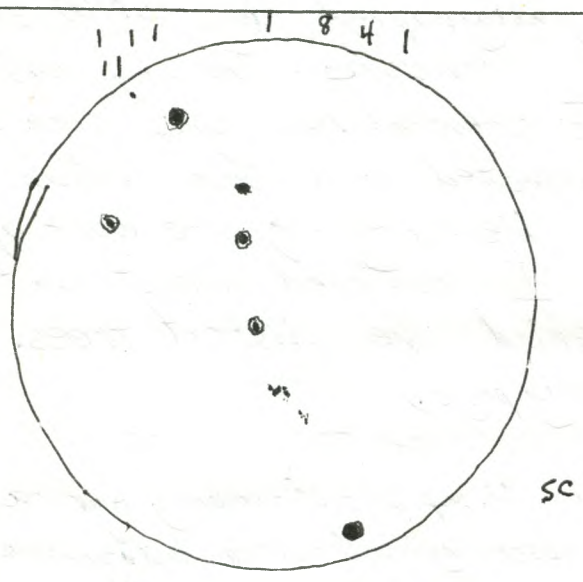
69
415
RSN 101

June 20
15:55-16:00 UT

Jupiter Saturn Cr. Moon



Jupiter, Saturn, Crescent Moon in morning sky
on W. June 28 at 08:30 UT (4:30 a.m. E.D.T.)



99
193
RSN 119

June 30
15:00-15:05 UT

a bright moon, about 24 hours from being a full moon.

S.-S. June 17-18 02:30-04:15 UT y 5-8(?) T 6. - Feb. ne; 12 $\frac{1}{2}$ " 32
ne: constellations

12 $\frac{1}{2}$ " : β Cyg - split beautifully; Polaris - split nicely; M4 seen with difficulty because of bright moonlight; lunar craters - well defined. The collimation of Denise's telescope, done by David Levy with the laser collimator he had brought with him - on June 8, seemed to have helped considerably.

Tu. June 20 15:55-16:00 UT t C-8, 32
Sun 6g 415 RSN 101 T.O.F.

T.-W. June 27-28 03:05-04:40 UT y 5-8 T 9-9.5 (!) ne; 20x100b
ne: constellations; Aurora

20x100b: M4, M80, M6, M7, M8, M20, M21, M22, M28, M23, M24 area, M25, M16, M17, M18, M11 and R Scuti, M107, M10, a GC in area of θ Oph - probably M9, (I checked the atlas later, not while observing), areas in Capricornus

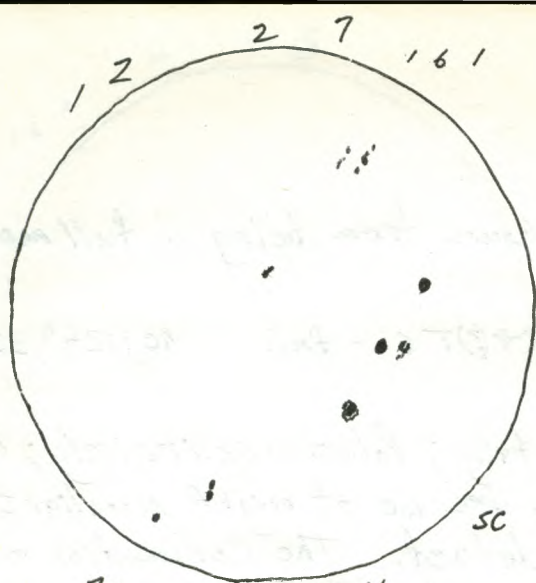
ne: There was an Auroral glow throughout the time when I was observing. It was mainly in the N, but extended to NW during part of the first hour I was observing. For a while in the first hour it was active with vertical bands up about 40°, but only one or two of them at once. There was only a slight hint of a pinkish or reddish colour.

^{4:40 - 5:05 a.m. E.D.T}
M 08:10 - 08:05 UT sh twl ne; camera lenses

observed and photographed the array of bright objects in the eastern twilight (see diagram) By end of the session they were up about 15° or more. It was my first viewing of Jupiter and Saturn in some time.

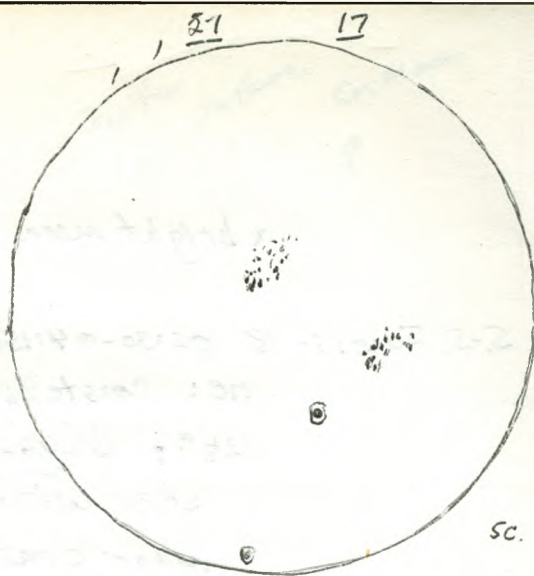
F. June 30 15:00-15:05 UT t C-8, 32
Sun 9g 195 RSN 119 T.O.F.

Aurora



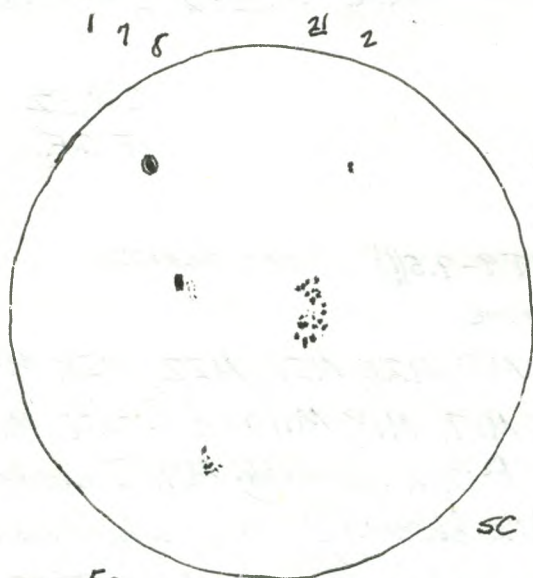
19
205
RSN90

July 4
18:45-18:50UT



249
468
RSN86

July 6
18:35-18:45UT



59
395
RSN89

July 7
13:50-13:55UT

2006

F.-S. June 30-July 1 03:10-04:40 UT y S-8-T7-8 (some cloud) ne; 9x63b
 ne: constellations; bright meteor \rightarrow NNW near α Ophiuchi
 about mag. -5; short trail; no prolonged trail; at about 04:10 UT.
 A glow or faint appearance of a possible glow in the
 N. may or may not have been auroral. There seemed
 to be a faint hint of reddish or pinkish colour.

9x63b: M4, M6, M7, M20, M8, M20 and M21 area,
 M16, M17, M18, M23, M24 area, M25, M11 and
 R. Scuti, areas in Capricornus, areas in Cas.

Tu. July 4 18:45-18:50 UT

sun 7g 20s RSN90

C-8,32
 T.O.F.

Tu-W. July 4-5 03:00-04:00 UT y S-8-T9-9.5 9x63b; 20x100b

9x63b: M4, M8, M16, M17, M18, M25, M22, areas in Oph, Lib,
 Sco, and Cap, Elyrae and area, areas of Cyg.

20x100b: M22, M4, M8, M11 and R. Scuti area, NGC 789 and
 areas in Cas, M16, M17, M18, M23, M24, M25.

W.-Th. July 5-6 02:45-03:40 UT 00 S-8-T6-8.5 (intermittent cloud) ne; 20x100b

20x100b M4, M22, M23, M24, M25, M16, M17, M18, M11 and R. Scuti area
 areas in Cygnus

ne: constellations; one fast meteor in Her. area - probably a Perseid

Th. July 6 18:35-18:45 UT \pm

sun 4g 46s RSN86

C-8,32
 T.O.F.

F. July 7 13:50-13:55 UT

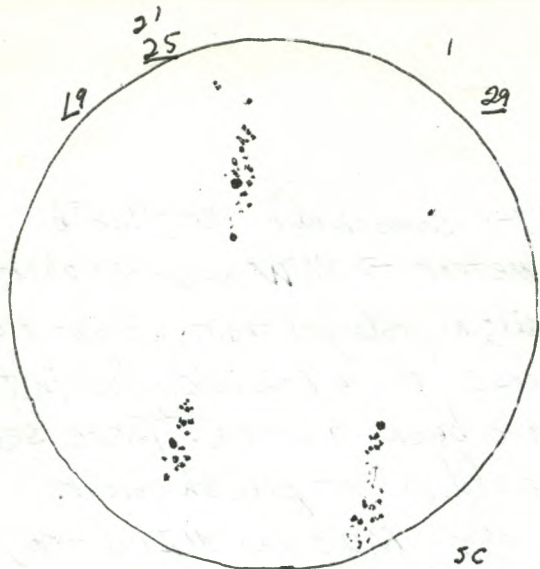
sun 5g 39s RSN89

C-8,32
 T.O.F.

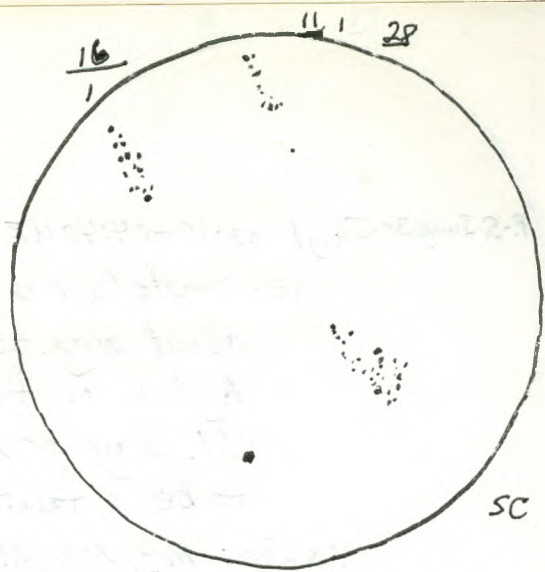
F.-S. July 7-8 01:45-04:20 UT y S-8(?) T6-8 (some cloud; fog m.l.) ne; 9x63b; 12x

ne: constellations; on meteor which was probably a Perseid, high - near
 the zenith, only about mag. 4, very fast; some glow in N.
 perhaps, but not sure if it was auroral or not - maybe not

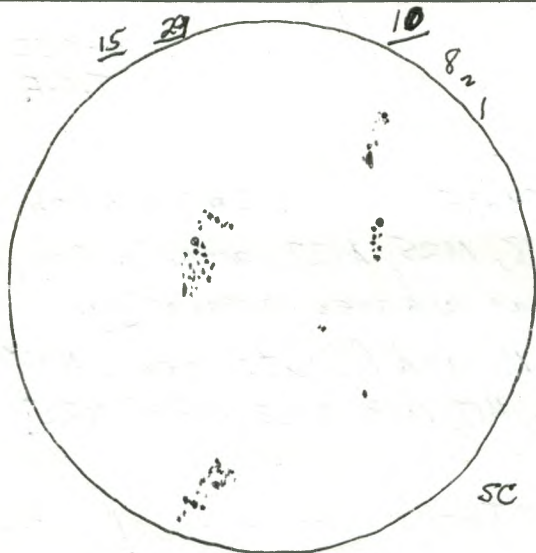
9x63b: M22, M25, M11 and R. Corvi area, areas of Scorpius and of



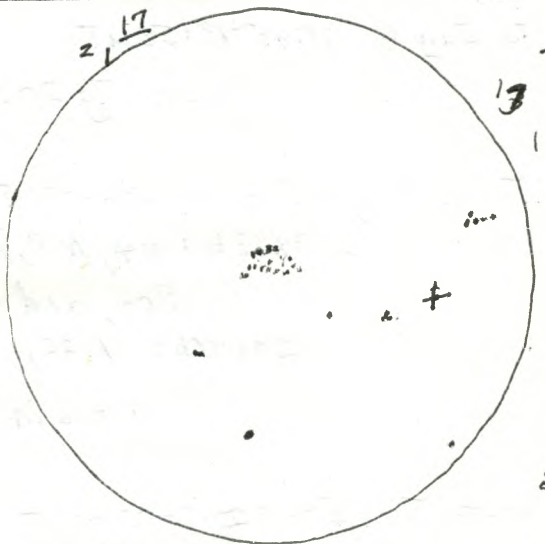
69 July 11
 885 19:15-19:20 UT
 RSN137



59 July 12
 575 13:45-13:50 UT
 RSN107



69 July 13
 655 19:15-19:20 UT
 RSN125



79 July 14
 325 16:40-16:45 UT
 RSN102

Cygneus.

12½": Denise and I observed lunar craters on the almost-First-Quarter Moon, with her new neutral-density Moon Filter. The view was very good.

M.-T. July 10-11 01:45-03:40 UT y S8(?) T-6-7 (g.m.l.; some cloud) ne
 Mir - constellations; passage of Mir at 03:24 UT from NW to SE - through handle of Big Dipper

Tu. July 11 19:15-19:20 UT t C-8, 32
 Sun 6g 70S RSN 137 T.O.F.

T.-W. July 11-12 01:30-01:40 UT y • twl; g.m.l. 12½"
 - observed lunar craters which were sharp and distinct in her telescope - with the new moon filter
 03:20-03:40 UT y S8(?) T6 (g.m.l.) ne
 - constellations; one bright (mag. -4) meteor in SE below Altair and very fast - probably a Perseid. A glow in N up about 20° to 40° may have been Aurora.

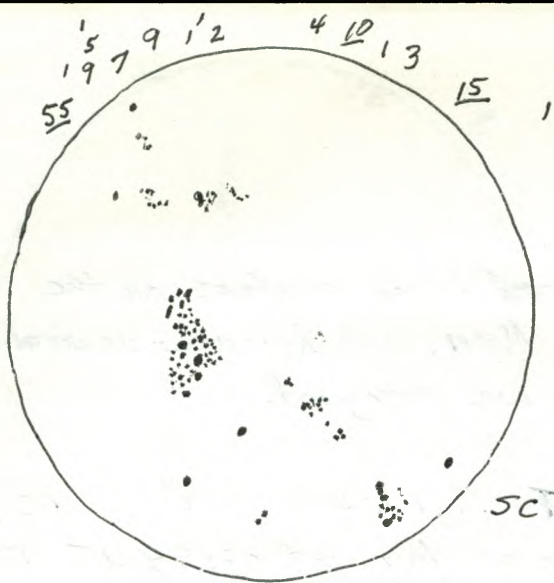
W. July 12 13:45-13:50 UT t C-8, 32
 Sun 5g 57S RSN 107 T.O.F.

W.-Th. July 12-13 02:50-03:50 UT y TR(?) S5-6 (clouds; g.m.l.) ne
 - constellations; a bright meteor in N lower r. from Polaris, bright, about mag. -2, not a Perseid; glow in N possibly and possibly auroral.

Th. July 13 19:15-19:20 UT t C-8, 32
 Sun 6g 65S RSN 125 T.O.F.

F. July 14 16:40-16:45 UT t C-8, 32
 Sun 7g 32S RSN 102 T.O.F.

Th.-F. July 13-14 02:50-04:10 UT y S-8(?) T5-6 (some clouds; g.m.l.) ne; 9x63b
 - ne: constellations; some glow or brightness in N, which may have



169
1255
RSN 285

July 20
14:20-14:40 UT

been Aurora

9x63b: areas low in NNE below Cas and in or near the bright stars of Per. hoping to see Comet Linear, but was unsure of seeing it; areas of Cyg and Cas.

S-M. July 16-17 04:00-04:20 nd T4-5 (clouds; fml.) ne
-constellations; difficult to see many stars.

M.-T. July 17-18 03:00-03:25 UT nd, y T4-6 (some clouds, fml.) ne; 9x63b
ne: bright stars, mainly in N.
9x63b: bright stars in UMa; looked for Comet Linear in N, but was unsure of seeing it.

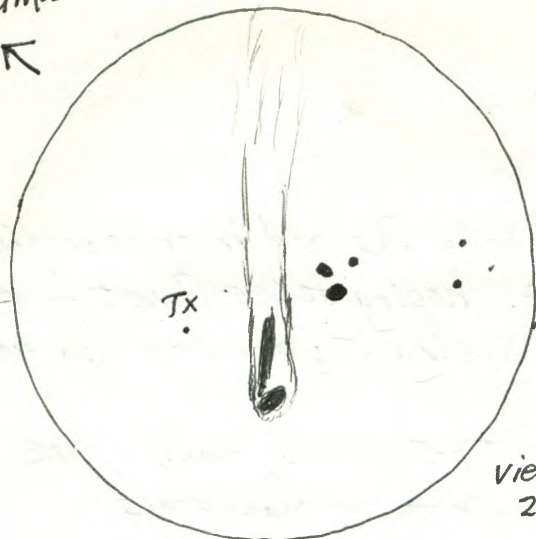
W-Th July 19-20 02:45-03:50 UT y S8(?) T6-8 (fml.) ne; 9x63b
ne: constellations; Aurora in N. and NW. with short-lived pulsating vertical band in area of cup of Big Dipper and fainter hints & vertical bands in N near Polaris; one faint Perseid meteor.
Aurora
9x63b: looked for Comet Linear and for a while I thought I might be seeing it below and slightly right from Polaris, but later I was much less sure of having seen it; areas of Cassiopeia

Th. July 20 14:20-14:40 UT t C-8, 32
sun 169 1255 RSN 285 T.O.F.

Th.-F. July 20-21 02:35-03:55 UT nd, y C8(?) T1-4 (cloud, gml.) ne; 9x63b
ne: some stars amid the clouds which were very extensive; bright flash, perhaps a point-meteor, in or near Scutum, about mag. -3.5
9x63b: looked for Comet Linear in western part of constellation UMa, i.e. near border with Cam, but was not sure of seeing it. Extensive clouds prevailed throughout the session

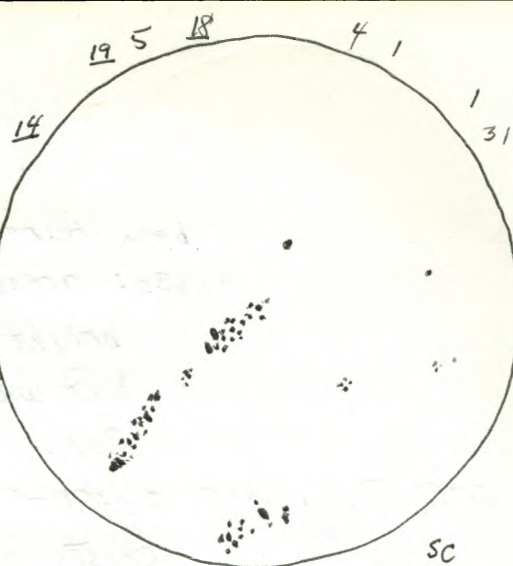
F.-S. July 21-23 03:00-04:00 UT nd S-8(?) T1-3 ne
Amid many clouds I saw some stars and parts of

ψ UMa



view in
20x100b.

Comet Linear 03:30 UT July 23-24
near R.A. 10^h 4^m Dec +46° 23'



99
~~66~~
RSN 166

July 24
20:00-20:10 UT

constellations.

S.-S. July 22-23 02:30-04:00 UT ^{across road} near Driscoll's house S-8T9.5! ^{after} e.a.t. ne; 9x63b

- observed and photographed area of Comet Linear "below Merak." I was almost certain of seeing it in the 9x63 binoculars but it was not impressive. It was at about R.A. $10^h 15.1^m$ Dec. $+51^\circ 34'$ (S. & T., July 2000, p. 101), E. of θ UMa (See U45). Observing conditions were excellent after the end of astronomical twilight. Auroral bands extending vertically were seen, but they were not extremely bright.

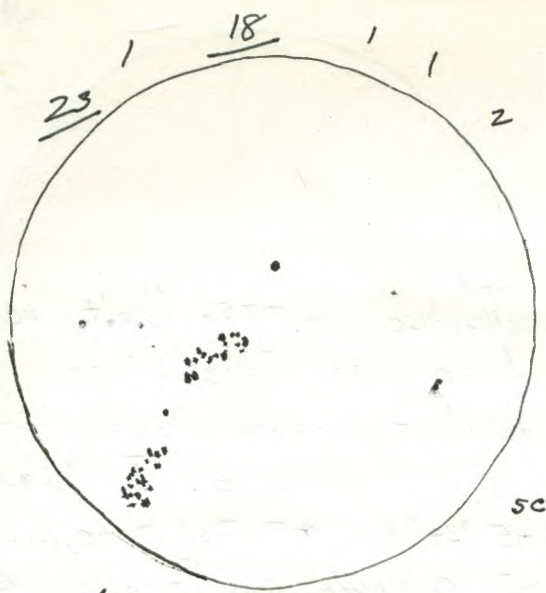
Aurora

04:00 - 04:40 UT rd S-8T9.5! ne
- After returning to my place, I continued to observe the northern sky and to see the glow in the N. and the faint vertical Auroral bands, but they did not develop into a very remarkable display.

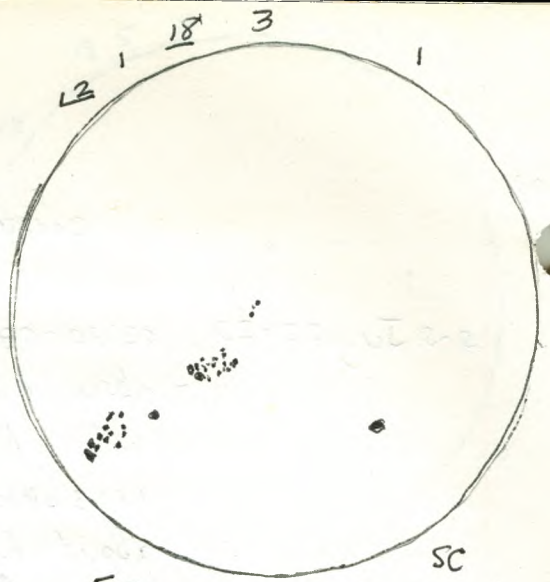
S.-M. July 23-24 02:20-04:30 UT y S-8, T9.5 (after e.a.t.) ne; 20x100b
ne: constellations; a bright meteor in W., Auroral glow in N., and faint reddish vertical bands up 45° or more in N. to NNW.
20x100b: area near and including Comet Linear in NNW, near R.A. $10^h 40.8^m$ Dec $+46^\circ 23'$ (S. & T., July 2000, p. 101 at 0^h UT on July 24) not far from θ UMa (See U72 and U73). The comet's tail was clearly seen pointing upward for about $\frac{1}{2}^\circ$ and much more faintly for perhaps 2° . It was at about mag. 6.5. A beautiful sight in the large binoculars. I star-hopped from the star ψ UMa (U73); it was very easy to find. (See drawing.)

M. July 24 20:00-20:10 UT t
sun 9g 6s RSN 156

C-8, 32



69
465
RSN 106
July 25
19:20-19:25 UT



59
355
RSN 85
July 26
19:50-19:55 UT

2000

M.-T. July 24-25 02:15 - 04:30 UT y 5-7-8 T 9.5-10! ne; 20x100b; 12 $\frac{1}{2}$
 ne: Constellations; 3 or 4 meteors, 3 probably being Perseids
 and one not a Perseid; Auroral glow in N₂ and
 vertical bands up 45° or more, slightly reddish
 in colour and seen moving back and forth, but
 fairly faint.

Aurora

Comet Linear

20x100b: Comet Linear, easily found low in NW,
 about 3 degrees or so SSW of ψ UMa with
 tail about $\frac{1}{2}$ ° long easily seen in the binoculars,
 and perhaps very faintly a bit longer

12 $\frac{1}{2}$ " : Comet Linear, M57

photographed: area of Comet Linear.

Tu. July 25 19:20 - 19:25 UT \pm
 sun 6g 465 RSN106

C-8, 32
 T.O.F.

T.-W. July 25-26 01:00 - 04:20 UT 00 5-7-8 T 9.5 ne; 20x100b; C-14, 32, 19
 ne: Constellations; Auroral glow and faint vertical bands
 up to about 45° or more from NW to NE and
 slightly red in colour, a couple of meteors, one quite bright
 and near Dubhe.

Comet Linear

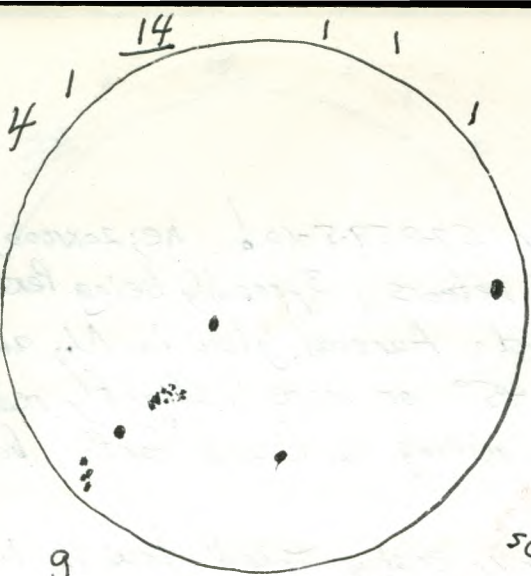
20x100b: Comet Linear in UM N. of ψ UMa, about
 mag. 6.8 and having a tail about $\frac{1}{2}$ ° in length,
 perhaps very slightly fainter than last night; M22,
 M28, M8, M20, M21, M23, M24, M25, M16, M17, M18,
 M11 and R Scuti and area, M15, M31, T Cor Bor,
 R Cor Bor, Barnard's Star.

C-14: M13, M57, β Cyg

W. July 26 19:50 - 19:55 UT \pm
 sun 5g 355 RSN85

C-8, 32
 T.O.F.

W.-Th. July 26-27 02:20 - 03:30 UT y 5-7-8? T 1-5 (considerable cloudiness) ne; 9x63b
 ne: Constellations
 9x63b: areas in Lyra, Cygnus.



9
5
RSN

July 27
20:55-21:00 UT

2000

Th. July 27 20:55-21:00 UT t

Sun 69 22S RSN02

C-8, 32

T.O.F.

Th.-F. July 27-28 02:50-04:20 UT y S-78T5-8 (some cloud) ne; 9x63b

(δ Sco
up)

Aurora

ne: constellations; δ Sco noted to be brighter than usual as reported on the Skyline Website where its unusual brightness was recorded as having been noticed about a month ago (It moved up from about mag. 2.34 to mag. 1.6.); about 5 Perseid meteors; Aurora with glow in N. and reddish vertical bands up to about 45° with shifting noticeable and some indications it might develop further during the session but it did not do so.

9x63b: areas in Cep, Boo, UMa, Cyg, Cor Bor.

Aug 3-4 02:50-04:50 UT y S-8T9-9.5 ne; 20x100b

Aurora

Neptune

Uranus

RSCap

EWCap

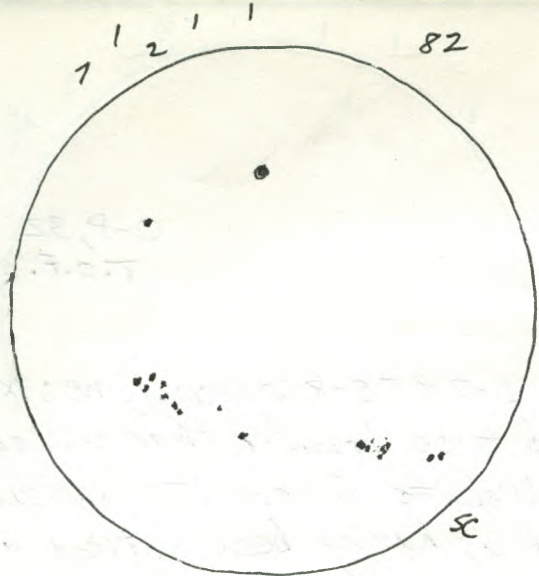
RXCcap

TCep

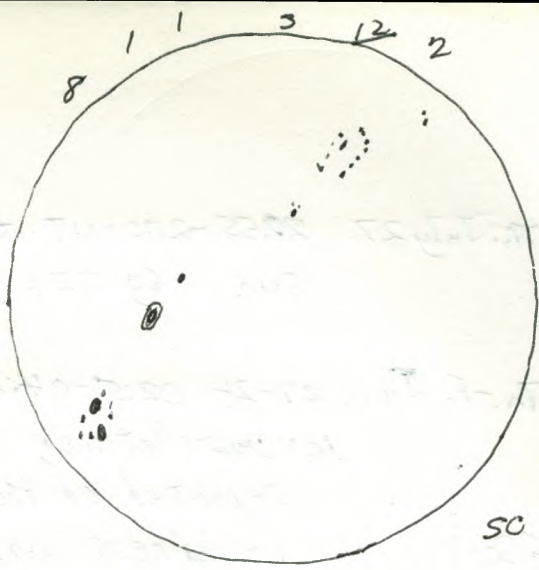
ne: constellations; Auroral glow in N. up to about 30°
 20x100b: Neptune in Cap near star σ Cap and to the SW of it (See U343); Uranus in Cap ~~NE~~ NE of the star ι Cap (See U300); Several variable stars also on U300: RSCap near θ Cap (See Burnham, p. 454 - Semi-reg., mag. 7.0-9., per. 340d.), EWCap (not listed in Burnham), RXCap (not listed in Burnham), ZCap area but not sure of seeing it at all (Burnham, p. 454: LPV, mag. 8.6-15.0, per. 181) since it may have been in the lower part of its cycle; TCep 210868 at about mag 7.0, which had been at max. about July 1 at mag. 6.0 (S. & T. July 2000 p. 108.) (Burnham: LPV, mag. 5.3-10.9, per. 390d.), M31, M110.

F.S. Aug. 4-5 02:15-03:45 UT y S-8T8-9 ne; 20x100b

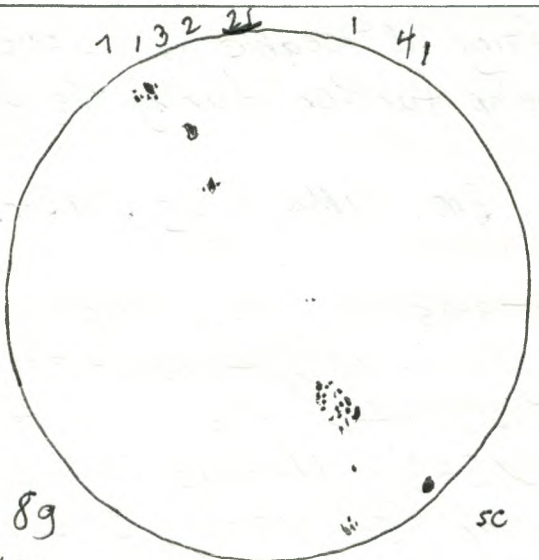
ne: constellations; ~~A~~ glow in N. that may have been Aurora up about 25° - 30° ; a fairly bright meteor in SE, not a



79 Aug. 5
225 14:55-15:00 UT
RSN92



69 Aug. 12
275 21:40-21:45 UT
RSN87



89 Aug. 13
405 14:50-14:55 UT
RSN120

2000

Perseid

20x100b: Neptune in Cap near \circ Cap; Uranus in Cap near \circ Cap; M8, M20, M21, M22, M28, M16, M17, M18, M23, M24, M25, M11 and R Scuti area, M71, M27, M31, M110, R Cor Bor, T Cor Bor.

Sat. Aug. 5 14:55-15:00 UT \pm

C-8, 32

Sun 7g 225 RSN 92

T.O.F.

Sat.-Sun. Aug. 5-6 02:30-03:30 UT y ^{some cml.} s-8, T 7-8.5 (some cloud; n) ne
 ne: constellations; Auroral glow in N. and several faint reddish vertical bands up 45° which were probably Aurora from NW to N.

F.-S. Aug. 11-12 02:30-02:45 UT nd

S? T1 (cloud)

ne

Perseid peak
cloudy

Hoping to see some Perseids at about the time of the shower's maximum, I observed for about 15 min. and saw about "4 or 5 or 50" stars, but the clouds were very plentiful and covered about 95% of the sky. Even if the clouds had not been present, there would have been a bright gibbous moon.

Sat. Aug. 12 21:40-21:45 UT \pm

C-8, 32

Sun 6g 275 RSN 87

T.O.F.

Sat.-Sun. Aug. 12-13 02:30-04:00 UT y

s-8 T6-7-gml.

ne; 18x50 15b

30x4 Perseids

ne: constellations; amid the very bright - almost full moon some glow in N. which was probably Auroral along with faint vertical bands up about 50° in NNW and N, slightly reddish in colour; 3 or 4 bright Perseid Meteors. The number seemed to be low because of the bright moonlight.

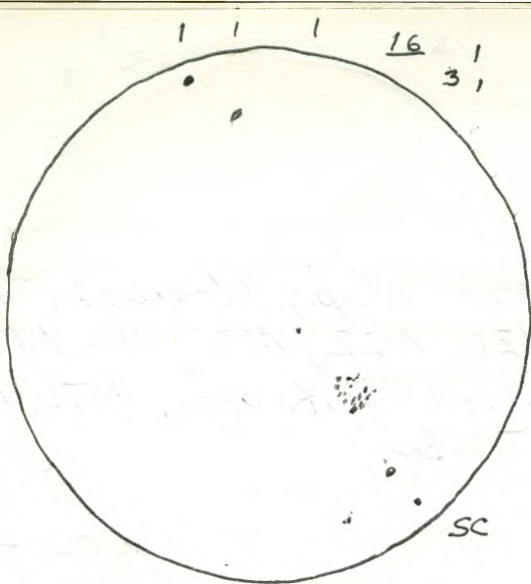
18x50 15b: With the new binoculars I had just purchased on Sat. I observed areas in UMa, UMi, Cas, Cep, ^{Alcor and Mizar} M3, M92. Excellent views!

Sun. Aug. 13 14:50-14:55 UT \pm

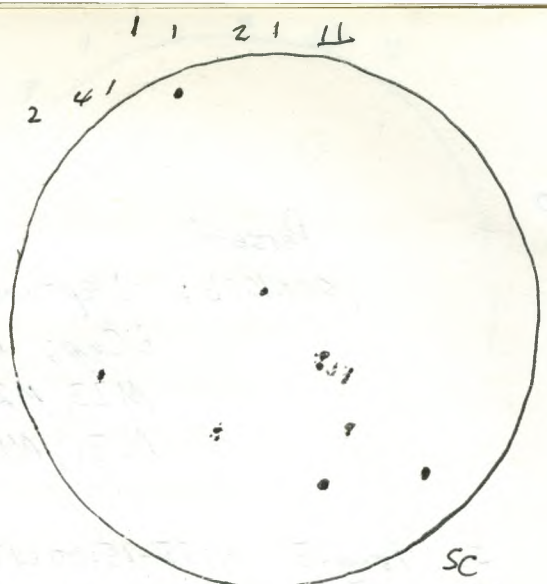
C-8, 32

Sun 8g 405 RSN 120

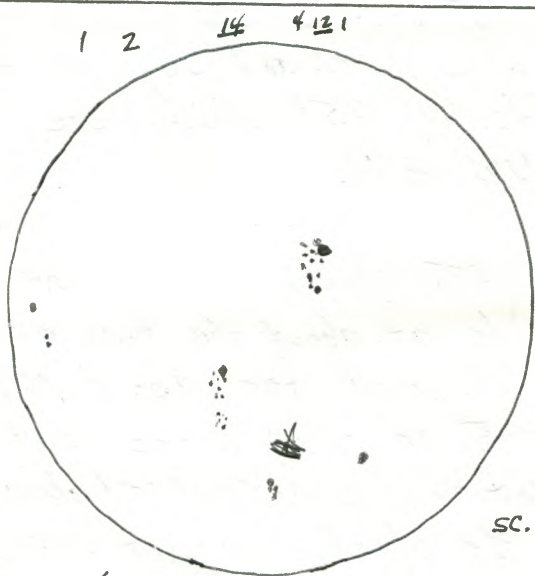
T.O.F.



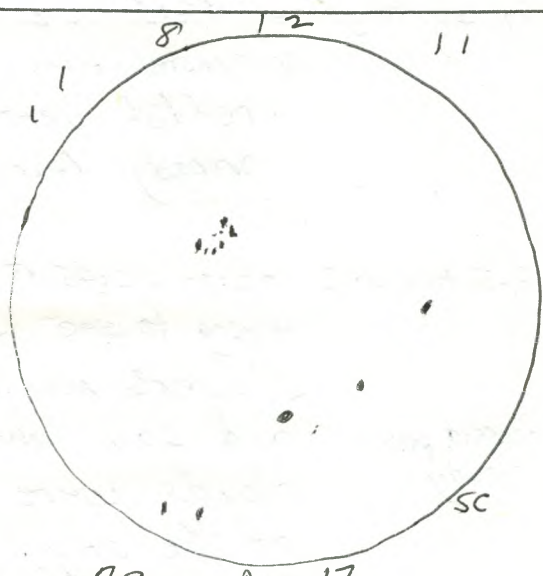
79 Aug. 14
245 14:45-14:50 UT
RSN94



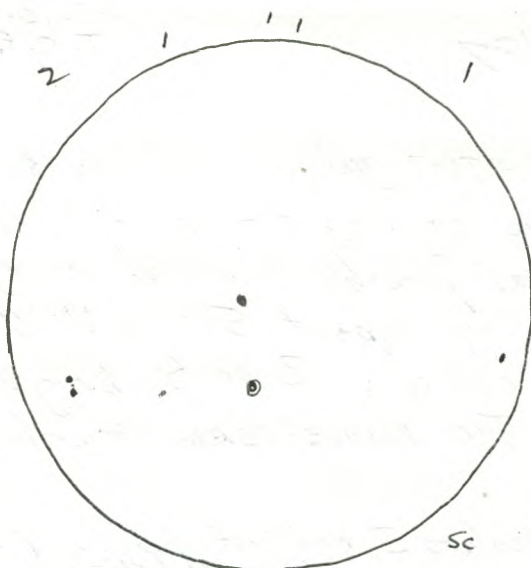
89 Aug. 15
235 13:40-13:45 UT
RSN103



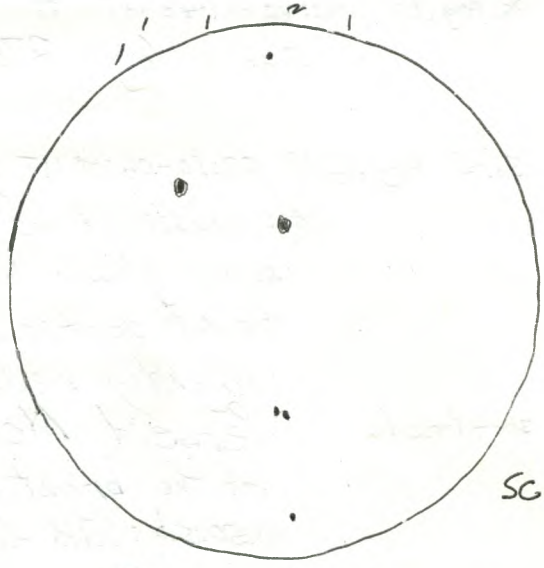
69 Aug. 16
345 14:50-14:55 UT
RSN94



79 Aug. 17
155 15:40-15:45 UT
RSN85



59 Aug. 19
65 21:05-21:15 UT
RSN56



59 Aug. 20
65 14:50-15:00 UT
RSN56

2000

S.-M.

Aug. 13-14 02:00-03:10 UT y S-7T6-7 gml. ne; 18x5015b

ne: constellations; good hints of Auroral activity with wide vertical bands in NNW to N up 50° and more and glow in N. Bands seemed slightly reddish in colour though faint. one Perseid Meteor, not very bright.

18x5015b: M31, Alcor and Mizar and areas in UMa

M. Aug. 14 14:45-14:50 UT t

Sun 7g 245 RSN94

C-8, 32

T.O.F.

M.-T. Aug. 14-15 03:00-03:30 UT nd S-8(?)T5-6 fml; slight haze ne; 18x5015b

ne: bright stars amid moonlight; hints of Auroral vertical bands slightly red in colour going up 50° in NNW to N and glow in N.

18x5015b: stars and areas in UMa, Cas, Cor Bor

T. Aug. 15 14:45-14:50 UT t

Sun 8g 235 RSN103

C-8, 32

T.O.F.

W. Aug. 16 14:50-14:55 UT t

Sun 6g 345 RSN94

C-8, 32

T.O.F.

Th. Aug. 17 15:40-15:45 UT

Sun 7g 15s RSN85

F.O.F. C-8, 32, 28, 20, 155

T.O.F.

Th.-F. Aug. 17-18 03:00-03:40 UT S-8(?)T6 gml. ne

- bright stars; glow in N. and slight hints of vertical bands from NW to N that may have been Auroral.

Sa. Aug. 19 21:05-21:15 UT t

Sun 5g 65 RSN56

C-8, 32

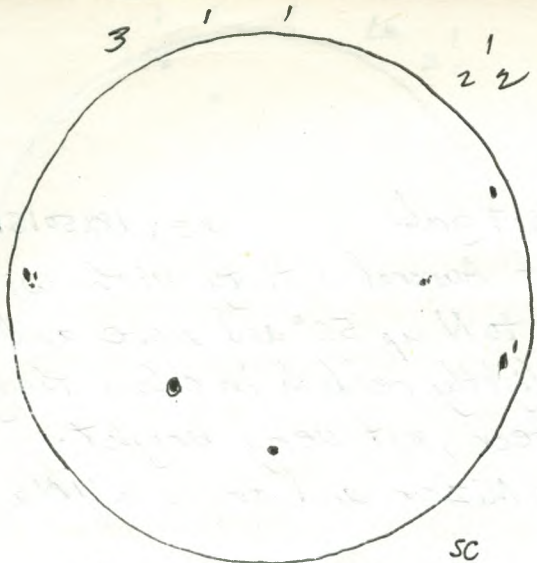
T.O.F.

Su. Aug. 20 14:50-15:00 UT t

Sun 5g 65 RSN56

C-8, 32

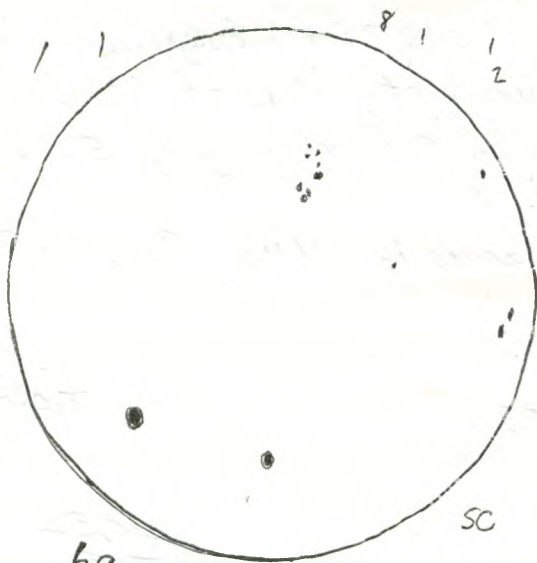
T.O.F.



69
105
RSN70

Aug. 24.
17:45-17:50UT

SC



69
145
RSN 74

Aug 25
20:50-20:55UT

SC

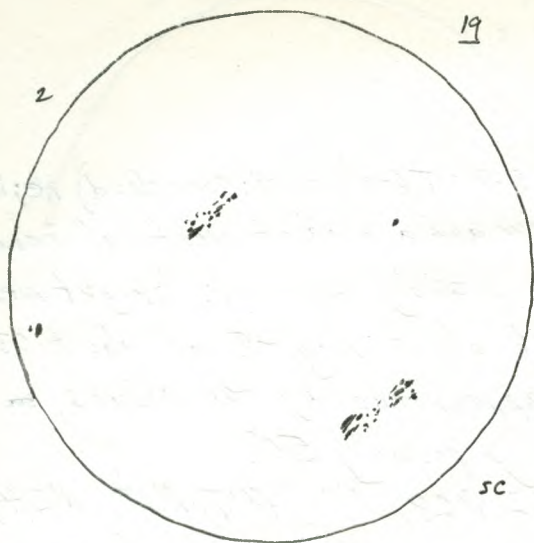
S.-M. Aug. 20-21 02:30-03:20 UT y S-8(?) T 6-9 (varied; some cloud) ne; 18x50 ISb
 ne: constellations; some glow and a hint of vertical band
 up 45° or more in N., possibly Auroral; bright meteor
 going W \rightarrow E near Zenith about mag. -5 at about 03:00:30
 UT, broken up in its appearance by the clouds, the
 length of its trail being possibly 50° .
 18x50 ISb: M8, M20, M21, M22, M28, M16, M17, M18, M24,
 M25, M11 and RScuti area, area of Uranus in
 Cap.

M.-T. Aug. 21-22 03:00-03:40 UT nd S-8(?) T 2-6 (varied; cloud, haze) ne
 - constellations; one short, bright (-3 mag.) meteor \rightarrow W to E
 in, or near, Cas, not a Perseid; faint hints of glow in
 N. and slightly reddish vertical band in N. up about
 45° , which may have been Auroral.

W.-Th. Aug. 23-24 02:50-03:25 UT nd S-8(?) T 6-8.5 (some cloud or haze) ne
 - Constellations; some hints of glow in N. and of vertical
 columns up about 45° . that might have been Auroral;
 one meteor - fairly faint - perhaps mag. 4 \rightarrow N in area
 of UMi

Th. Aug. 24 17:45-17:50 UT t C-8, 32
 Sun 6g 10s RSN 70 T.O.F.

Th.-F. Aug. 24-25 01:20-04:40 UT 00 S-8 T 7-9 (varied; cloud) ^{some periodic} ne; 20x100b.
 18x50 ISb; n
 ne: constellations; 3 or 4 meteors - 1 from N and quite bright,
 one from E and possibly a Perseid
 18x50 ISb: area of RSOph (U293) (Rec. Nova, mag. 4.0-12.)
 not seen, but XX Oph (See Baraham p.1246 - the
 "Iron Star") was seen, as was Y Oph, both in the area of
 RSOph (XX Oph: mag. 9.1-11.1, Irregular; Y Oph: mag. 6.5-7.3,
 Cepheid, per.: 17.123 days) - found by star-hopping from
 ϵ Ser (U293), M22, M11 and area, M15, M31, Neptune,
 Uranus, M2
 20x100b: area of RSOph (see above.) XX Oph, Y Oph, M22, M8,



49
315
RSN 77

Aug. 27
18:30 - 18:35 UT

2006

M20, M21, M31, Uranus and Neptune in Cas; Barnard's Star (U249)

F. Aug. 25 20:50-20:55 UT \pm C-8, 32
 sun 6g 14s RSN74 T.O.F.

F.-S. Aug. 25-26 01:00-04:40 UT 00 S-8-9 T8-9 ne; 18x5015b; ~~C-14~~ 32
 ne: constellations; 4 or 5 meteors, fairly bright.

C-14: M57 at increasingly higher power, hoping to see the central star - 17mm ocular (230X), 12mm (325.8X), 7.4mm (528.4X), 5mm (782X), 4mm (977.5X), but was not sure of seeing it; area of Veil Nebula; M13.

18x5015b: Neptune, Uranus, M22, M16, M17, M18, M25, M24, Barnard's Star and area

20x100b: M16, M17, M18, M25, M24, Uranus, Neptune, Barnard's Star, IC4665, 5Y Her (See U157) (down - SW from δ Her) (Burnham, p. 957: LPV, Per.: 117d.9 mag.: 8.0-13.) scheduled to be at max. at mag. 7.8 on Sept. 2 (S. & T. Sept. '00.); R5 Her (See U157, 158); (R5 Her is LPV with 219 day period and mag. from 7.5-12.5 according to Burnham, p. 957); T Cor Bor and area.

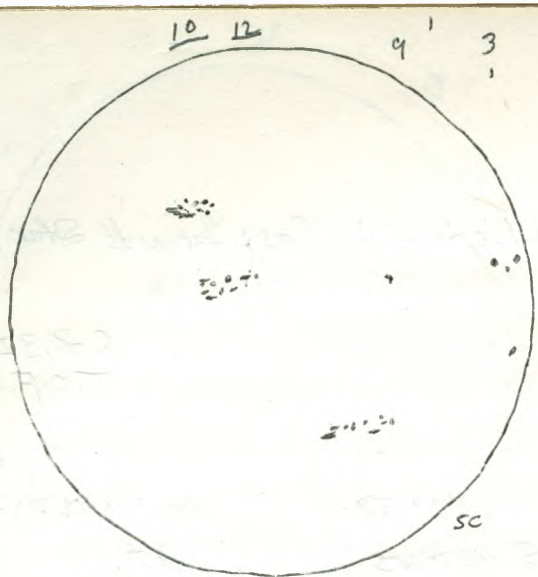
Sa. Aug. 27 18:30-18:35 UT \pm C-8, 32
 sun 4g 37s RSN77 T.O.F.

Sa.-M. Aug. 27-28 01:20-06:00 UT 00 S-9 (!) T9.5 (!) ne; C-14, 32; 18x5015b; 20x100b

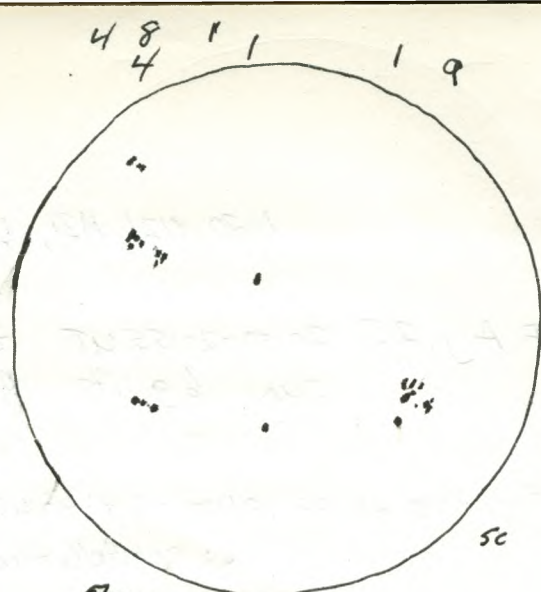
ne: Constellations, including part of Scorpius, but δ Sco did not seem to be quite as bright as it had been about a month ago; 4 or 5 fairly bright meteors including one probable Perseid. I thought that the star η Oph appeared brighter than usual, at least for a while.

C-14: M57. The C-14 was also used to "piggyback" the camera to take various photographs. I observed the areas of Uranus and Neptune in the finder scope.

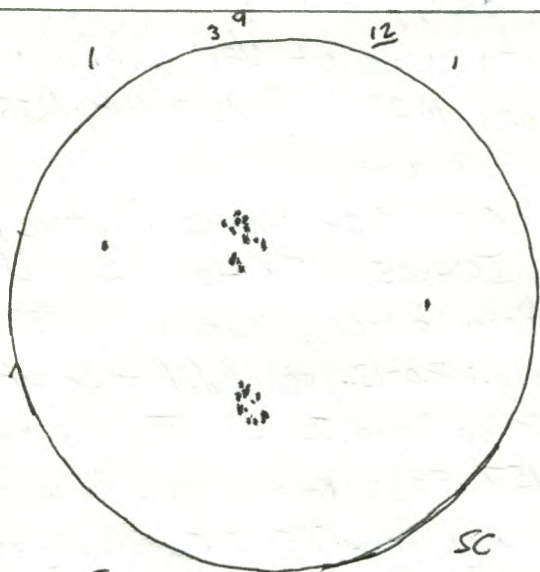
18x5015b: M8, M20, M22, M21, M16, M17, M18, M23, M24, M25, M11 and



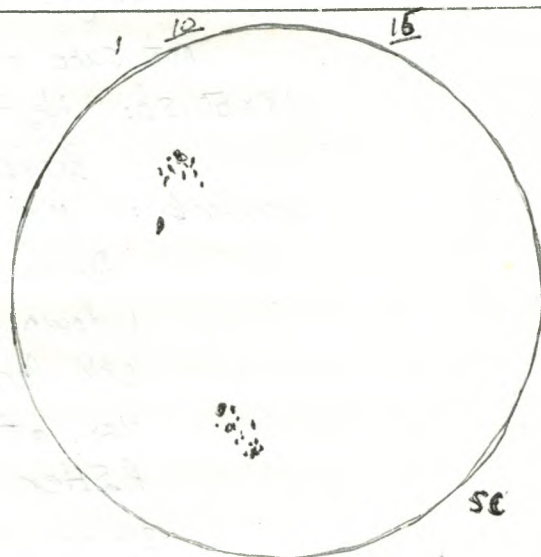
6g
365
RSN 96
Aug 28
17:53-17:58UT



7g
285
RSN 98
Aug. 31
15:45-15:50UT



5g
265
RSN 76
Sept. 4
16:15-16:25UT



3g
265
RSN 56
Sept. 5
16:35-16:40UT

area, Uranus, Neptune, RSoph area, Y Oph,

20x100b: Uranus, Neptune, Barnard's Star and area, T Cor Bor,
M11 and area, Pleiades, Saturn and Jupiter in E.

Photographed: various areas in Milky Way and other specified
areas using 200mm lens and 85mm lens "piggybacked."

~~M. Aug. 28 17:53-17:58~~

M. Aug. 28 17:53-17:58 UT \pm

sun 6g 365 RSN96

C-8, 32
T.O.F.

M.-T. Aug. 28-29 03:40-06:00 UT nd 58(?) T 7-8 (^{some} haze) ne; 18x50ISb

ne: constellations; hints of Auroral activity with wide vertical
bands, slightly reddish in colour in some cases and some of
them up 50° or more in N. to NNW.

18x50ISb: areas of UMa, M13, areas of Her., M31, Uranus,
Neptune.

Th. Aug. 31 15:45-15:50 UT \pm

sun 7g 285 RSN98

C-8, 32
T.O.F.

Th.-F. Aug. 31-Sept. 1 03:15-04:40 UT nd 58(?) T 8-9 ne

- constellations; one bright meteor going almost "downward" in
WNW, about mag. -3.5 at about 04:00 UT; hints of Auroral
vertical bands slightly reddish in colour in N to NW.

M. Sept. 4 16:15-16:25 UT \pm

sun 5g 265 RSN76

C-8, 32, 28, 29, 155
T.O.F.

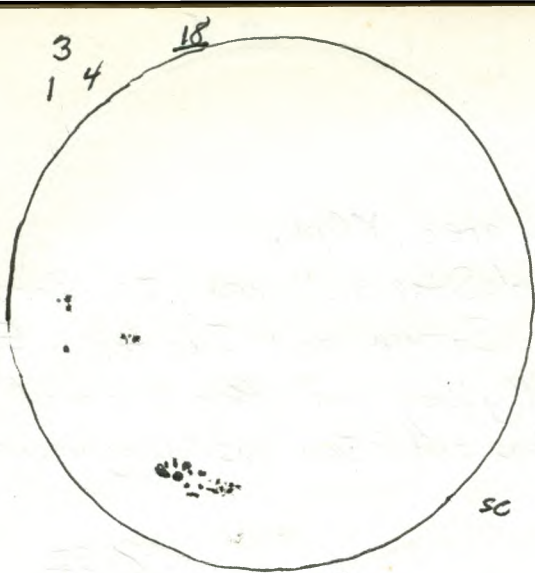
M.-T. Sept. 4-5 00:00-05:20 UT 00 58-9 T 9-9.5 ne; C-14, 32; 18x50ISb; 20x100b

ne: constellations; 2 or more fairly bright meteors; glow in N.
that may have been Auroral and hints of vertical reddish
bands that may have been Auroral in N. to NW.

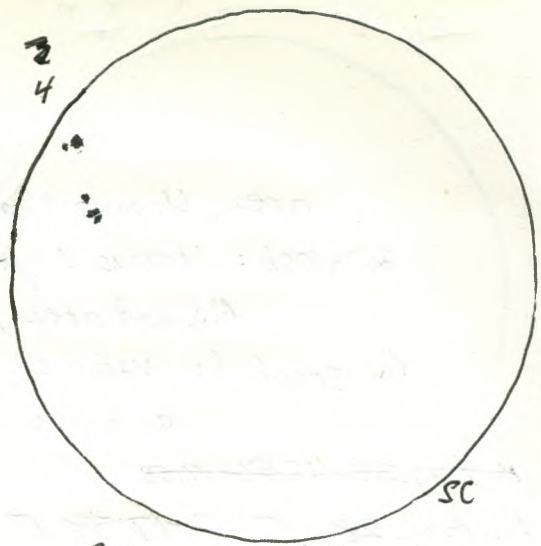
C-14: M57

18x50ISb: areas of Summer Milky Way and N. part of Ophi; moon

20x100b: M16, M17, M18, M24, M23, M25, M8, M20, M21,
M11 and R. Scuti area, M22, M28, M15, M32, M33,



4g
26S
RSN66
Sept. 7
18:40-18:45UT



2g
75
RSN27
Sept 9
14:20-14:25UT

2000

M10, M32, Uranus, Neptune, Pleiades, area of
Jupiter and Saturn in Taurus.

Photography: Piggyback photographs of Uranus and
Neptune areas.

T. Sept. 5 16:35-16:40 UT t

Sun 3g 26s RSN 56

C-8, 32, 28, 20
T.O.F.

T.-W. Sept. 5-6 00:00-03:40 UT 00 S-8(?)T-7-8 (gml.) ne; 18x5015b; ^{20x100b} ↑

ne: constellations; glow in N that may have been Auroral
and strong hints of vertical bands, some slightly
pinkish in colour up 45° or more in NW and N.

18x5015b: areas of Cygnus, moon

20x100b: moon; Uranus; Neptune; M16, M17, M18, M25,
M31, M33.

W.-Th. Sept 6-7 01:05-02:30 UT y and ad S-8(?)T 4-7 (some cloud; gml) ne

-constellations; one bright but short meteor in Aquarius;
glow in N. that may have been Auroral and several
vertical bands in N and NW with some hints of redness
in colour up 45 degrees or more and perhaps some
inclined bands in NE also.

Th. Sept. 7 18:40-18:45 UT t

Sun 4g 26s RSN 66

C-8, 32
T.O.F.

Th.-F. Sept. 7-8 00:00-05:50 UT 00 S8(?)T 6-8 (gml) ne; 20x100b

ne: constellations; glow in N. that might have been auroral with
hints of vertical bands up about 45° in NW and N.

20x100b: Uranus, M31, M32, M10, Saturn in Taurus, Pleiades

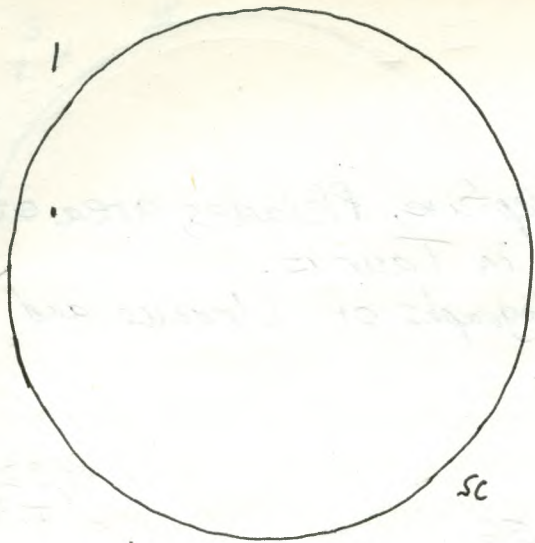
Sa. Sept. 9 14:20-14:25 UT t

Sun 2g 7s RSN 27

C-8, 32
T.O.F.

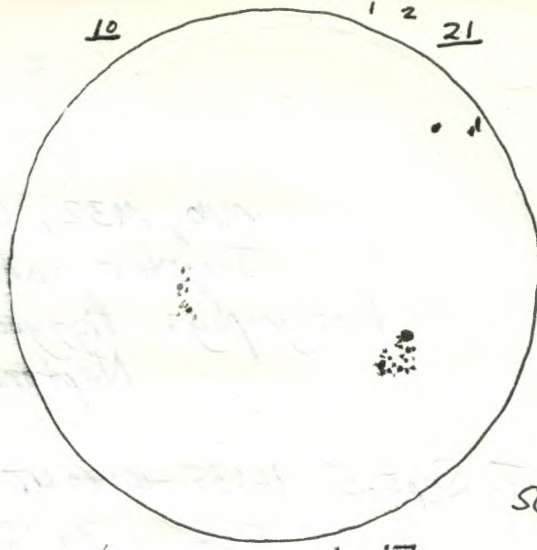
Sa.-Su. Sept. 9-10 02:40-04:00 UT y and ad S8(?)T 6-7 (gml) ne; 18x5015b

ne: constellations; possible glow in N. that might have been



1g
ps
RSN11

Sept. 13
14:15-14:20UT



4g
34s
RSN74

sept. 17
20:55-21:10UT

2000.

Aurora: Algol at, or near, minimum, which was listed as 03:29 UT
 18x50 ISb: Uranus and area in Cap.; M31; Moon

W. Sept. 13 14:15-14:20 UT t
 sun 1g 1s RSN11

C-8, 32, 28, 20, 15.5
 T.O.F.

Sa.-Su. Sept. 16-17 00:55-02:30 UT y, nd s-8(?) T 7-8 (some cloud) ne, 12 1/2"
 Aurora! ne: definitely a good Aurora at, or possibly a couple of minutes before moonrise (which was at 01:00 UT) and less so afterward because of brightening moonlight and some clouds in the N. At first there was a fairly intense glow in the N. and vertical columns, reddish and pinkish in colour in N. and NNW; one fairly bright meteor in NW.

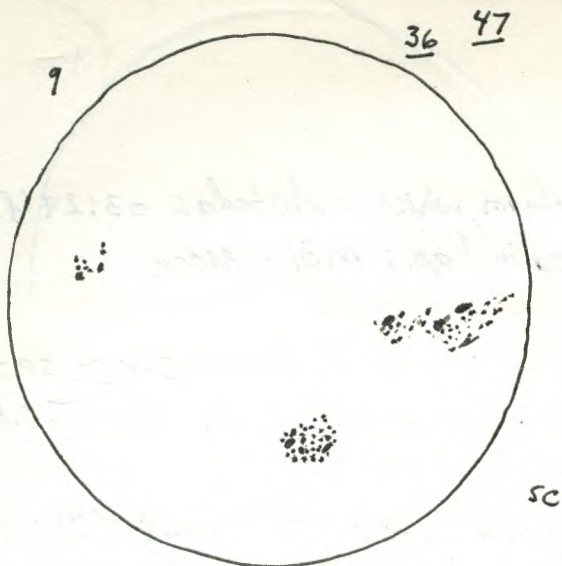
12 1/2": M13, Double cluster in Per.
 Photographing: Aurora in N

Su. Sept. 17 20:55-21:10 UT t
 Sun 4g 34s RSN74

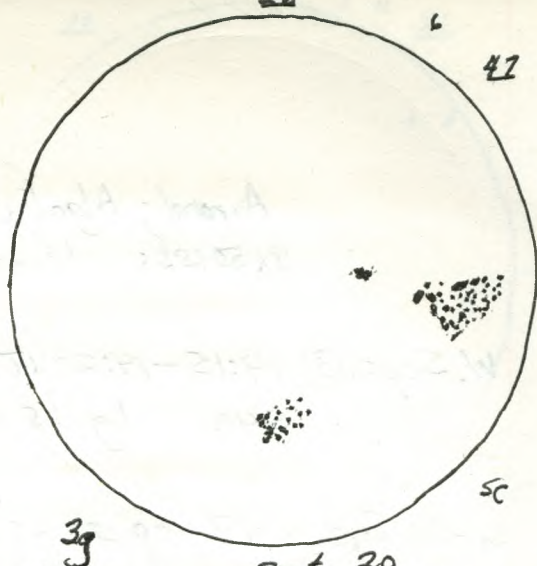
C-8, 32
 T.O.F.

Su.-M. Sept. 17-18 01:00-02:10 UT nd, y s-8(?) T 7-8 (some cloud) Aurora ne
 Aurora! - viewed very good Aurora before moonrise, at about 01:29 UT, with bright glow in almost whole of the Northern half of the sky with a prominent vertical band in W. for a while up to about the zenith. Later after moonrise, the glow in the N. was not so bright nor widespread. - one fairly bright meteor. The Aurora was at times very slightly reddish in colour, but was mainly whitish.

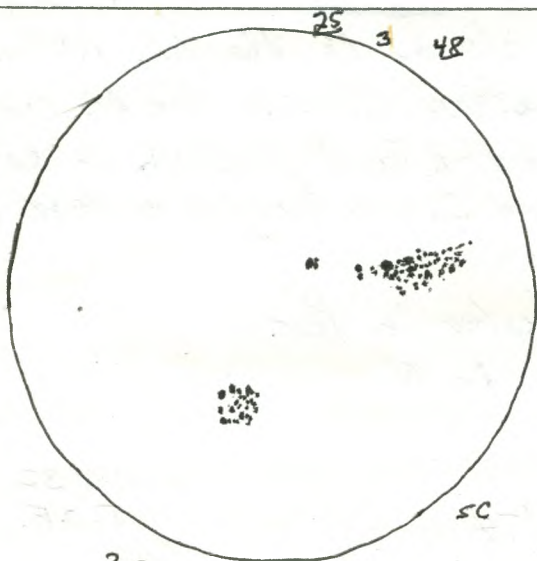
M.-T. Sept. 18-19 00:30-02:45 UT oo s-8(?) T 6-8 (some cloud; g.m.l.n) ^{after moonrise} ne; 20x100b
 ne: constellations, faint hint of Aurora vertical band in N. up past Polaris.
 20x100b: V Boo in NW near ~~V~~ Boo (see 4.), Neptune,



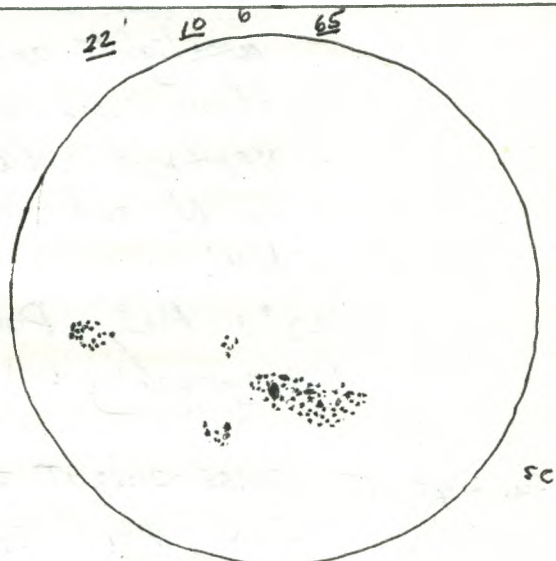
39
92S
RSN122
Sept. 19
19:45-19:50UT



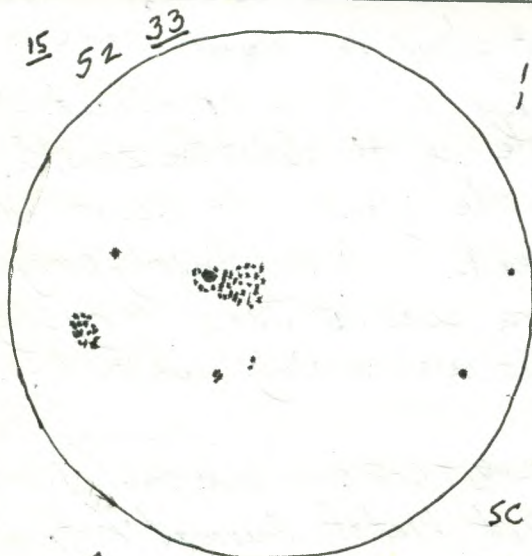
39
79S
RSN109
Sept. 20
19:05-19:10UT



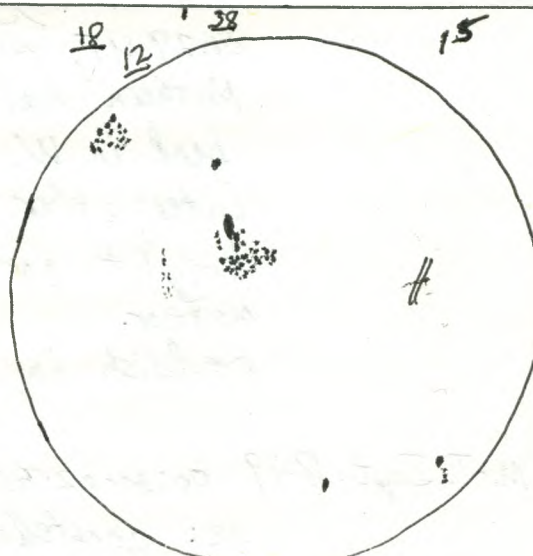
39
76S
RSN106
Sept. 21
21:25-21:30UT



49
103S
RSN143
Sept. 22
13:30-13:35UT



69
57S
RSN117
Sept. 24



59
75S
RSN125
Sept. 25
13:45-13:50UT

2000

Uranus,
Photographing: guided on C-14- areas of Uranus and
Neptune.

Tu. Sept. 19 19:45-19:50 UT t C-8, 32
Sun 3g 92s RSN122 T.O.F.

T.-W. Sept. 19-20 01:10-03:00 UT y S-8-9(2)T9 ne; 18x5015b
ne: constellations; 2 meters; hint of glow in N. and of
vertical band up over 45° that may have been Auroral
18x5015b: Neptune area; Uranus and area, M15, M31,
M33, M16, M17, M18, M22, Double Cluster,
Col 1399, M13, areas of Cep including δ Cep area.

W. Sept. 20 19:05-19:10 UT t C-8, 32
Sun 3g 79s RSN109 T.O.F.

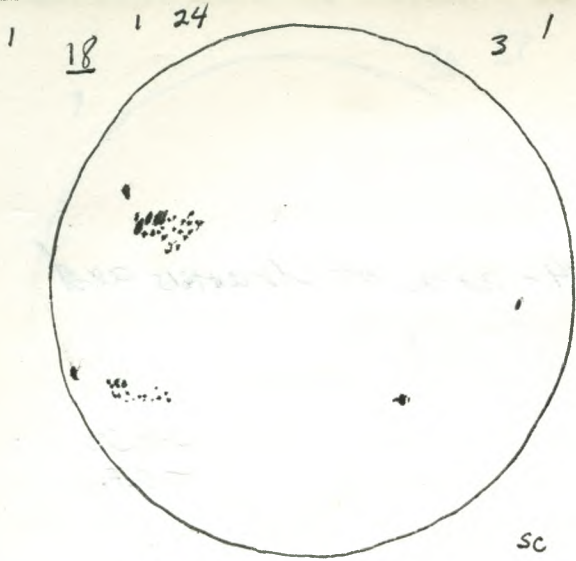
Th. Sept. 21 21:25-21:30 UT t C-8, 32
Sun 3g 76s RSN106 T.O.F.

F. Sept. 22 13:30-13:35 UT t C-8, 32
Sun 4g 103s RSN143 T.O.F.

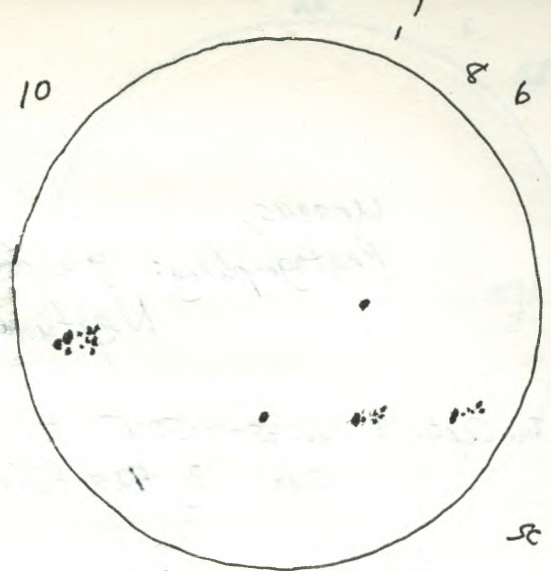
Sa. Sept. 24 18:25-18:30 UT t C-8, 32
Sun 6g 57s RSN117 T.O.F.

Su.-M. Sept. 24-25 01:10-03:10 UT y S-8-9(2)T9 ne; 18x5015b
ne: constellations; hint of glow in N. and of column of light,
perhaps slightly reddish, up 45° or more, that may
have been Aurora.
18x50b: M31, M32, M10, M33, M11 and R Scuti area, area of
Neptune, Uranus and area, Double Cluster in
Per., NGC 7789 in Cas.

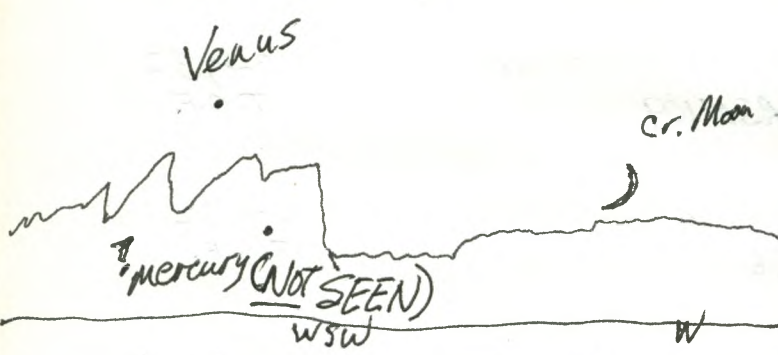
M. Sept. 25 13:45-13:50 UT t C-8, 32
Sun 5g 75s RSN125 T.O.F.



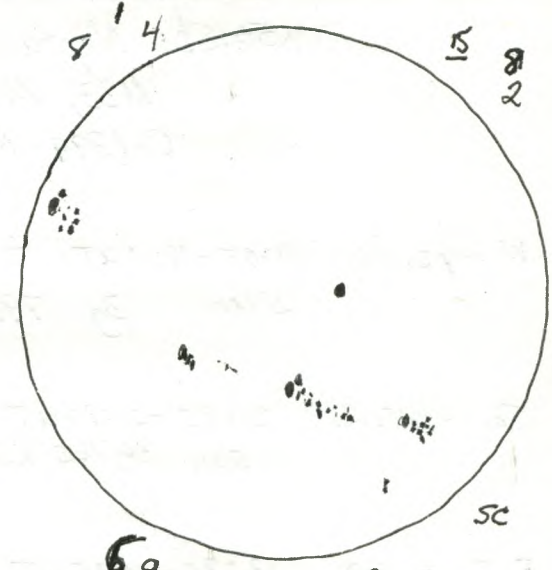
69 Sept. 26
 48s 17:40-17:45 UT
 RSN108



59 Sept. 28
 26s 19:45-19:50 UT
 RSN76



View to WSW from MTO Picnic Area
 at Silver Lake at 23:23 UT
 Th-F Sept 28-29. Binoculars used for moon.



69 Sept. 29
 38s 16:00-16:05 UT
 RSN 98



2000

Tu. Sept. 26 17:40-17:45 UT t
sun 69 48s RSN 108

C-8, 32
T.O.F.

Tu.-W. Sept. 26-27 00:15-03:45 UT 00 58(?) T 8.5-9 ne; 20x100b; C-14, 32

ne: constellations; perhaps very slight hint of glow in N. and slight vertical column that might have been Auroral
20x100b: M8, M20, M21, M22, M28, M16, M17, M18, M24, M25
M31, M32, M110, M33, Saturn, Pleiades, M1 and R Scuti and area, Neptune area, Uranus and area;

C-14: M57

Photographing: Uranus area, Neptune area, other areas.

Th. Sept. 28 19:45-19:50 UT t
sun 59 26s RSN 76

C-8, 32
T.O.F.

Th.-F. Sept. 29-30 ^{at Silver Lake} 23:00-23:40 UT M.T.O. Picnic Area, tul ne; 9x63b

ne: Venus low in WSW spotted first with binoculars but seen almost immediately naked-eye. I had hoped to see Mercury below and to the right from Venus, but did not see Mercury.

9x63b: very thin crescent moon seen about 23:23 UT (See diagram.) Mercury was to be seen below Venus according to map published by skypub.com, but I did not see it, possibly because of the trees. (Also, photographed)

02:05-03:45 UT y 5-8(?) T 9-9.5 ne; 18x501sb

ne: constellations; 2 or 3 fairly bright meteors; hint of vertical band in N. that may have possibly been Auroral
18x501sb: Neptune area; Uranus, M2, M1 and R Scuti area, areas of Aquarius and Capricornus, M13, M92, M57, M31, NGC 7789, Double Cluster in Per.

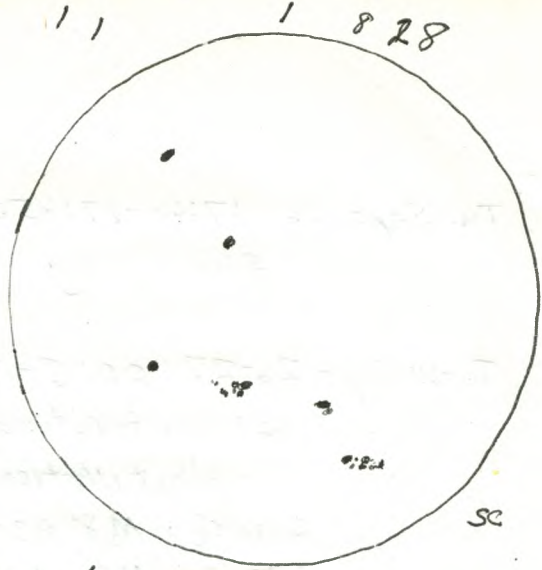
F. Sept 29 16:00-16:05 UT t
sun 69 38s RSN 98

C-8, 32
T.O.F.

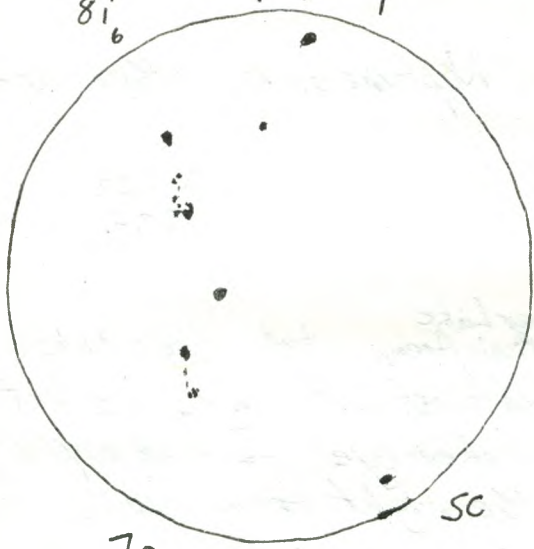
Venus  Cr. Moon 
 clouds 

(?) Mercury (NOT SEEN)

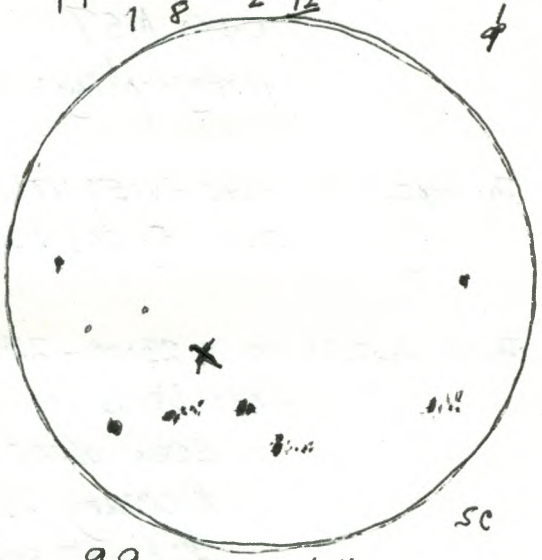
View to WSW from MTD Picnic Area
 at Silver Lake at 23:15 UT
 F.-S. Sept. 29-30



69 Oct. 1
 215 17:25-17:30 UT
 RSN 81



79 Oct. 3
 195 14:20-14:25 UT
 RSN 89



99 Sept. 4
 365 20:55-21:00 UT
 RSN 126

2000

F-S. Sept 29-30 23:00-23:30 UT ^{NTO Arctic Area at Silver Lake} n twl with Denise ne; 9x63b n

ne: Venus low in WSW spotted at first with binoculars, moon about 8° from Venus. Mercury was not seen.
9x63b: Venus, spotted first in the binoculars. Moon was a beautiful, slim crescent. Mercury was not seen, possibly behind clouds at first and later possibly behind the trees.

Photographed: area of Venus and the crescent moon.
03:00-04:00 UT y S 8 T 9-9.5 ne; 18x5015b
ne: constellations; Jupiter and Saturn in Taurus, Jupiter so bright that I could see a shadow of my arm on the observatory from the light cast by Jupiter at mag. -2.6; glow in N. up about 15° that might have been Auroral

18x5015b: M13, M31, M33, M2, NAC 7189, Double Cluster in Per., Uranus, Neptune area Jupiter and 3 moons, Saturn, Pleiades, Hyades, M57.

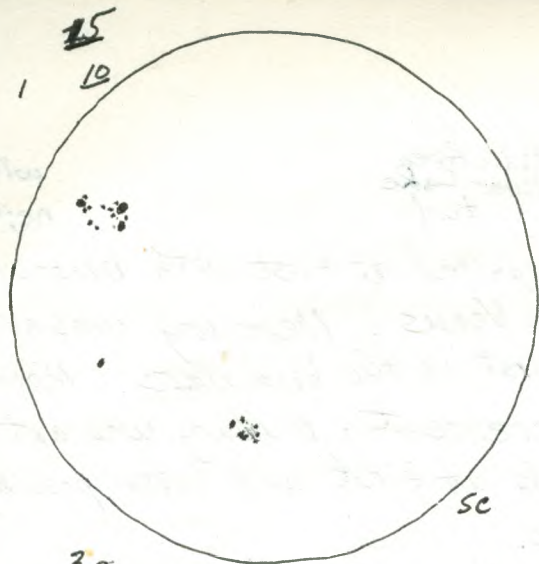
Su. Oct. 1 17:25-17:30 UT t C-8, 32
sun 69 215 RSN 81

Su-M. Oct. 1-2 01:30-02:40 UT nd S 8(?) T 8-9 ne
- constellations; hint of glow in N. and vertical bands which may have been Auroral going up 45° and with a slight hint of reddishness, the bands being in N. and NNW.

Tu. Oct. 3 14:20-14:25 UT t C-8, 32
sun 79 195 RSN 89 T.O.F.

T-W. Oct. 3-4 23:00-23:30 UT ^{on Upper Sharbot Lake} Sharbot Lake Beach, n twl with Denise ne; 9x63b
^{up about 15 degrees}
- Venus in WSW, seen by Denise right after arriving at the beach; looked for Mercury but did not see it; photographed area of Venus.

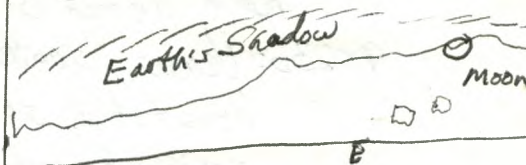
W. Oct. 4 20:55-21:00 UT t C-8, 32
sun 99 365 RSN 126 T.O.F.



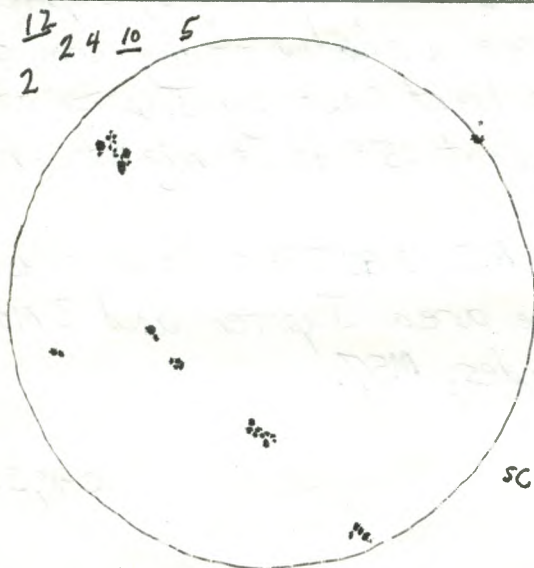
39
265
RSN56

Oct. 11
14:40-14:45 UT.

near Full Moon
Later: 01:10 UT



Oct 11-12 22:35 UT
Rising Moon
Moon: almost Full - night before the
seen from dock "Hunter's Moon."



69
355
RSN95

Oct. 12
14:35-14:40 UT

2000

W-Th. ~~Oct. 4-5~~ 03:45-04:30 UT nd 58(?) T9 (except for Aurora) ne

Aurora!

- constellations, one bright (about mag. 2.5) meteor in Cygnus area; Mira (o Ceti) easily seen naked eye - now near maximum;
 great Auroral display: at first only a bright glow up 20° in N, later growing steadily to arc in N. from NW to NE, then to double arc up about 40° and later double arc with 2 or 3 patches above, and pulsating spots, considerable flaming but not much colour - generally just white with perhaps slight hint of yellow or red in some vertical bands. The grew in extent considerably after 04:00 UT and by 04:30 UT had almost filled the northern half of the sky. After going to bed, I checked later at about 06:00-06:05 UT and found the Aurora still very active with a huge arc in the North. It apparently continued all night.

W. Oct. 11, 14:40-14:45 UT t C-8, 32
 sun 39 26 S RSN 56 T.O.F.

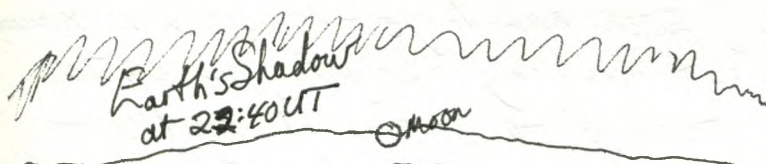
W-Th. Oct. 11-12 22:15-22:35 UT dock at lake sunset; twl ne
 - looked for moon to rise before time of sunset on evening when moon was about 33 hours before Full
 My listed time of moonrise was 22:11^{UT} (6:11 p.m. E.D.T) but I did not see it above (or in) the trees across the bay until about 22:32 UT (6:32 p.m. E.D.T). The rising of the earth's shadow was very clearly seen.
 (See diagram.)

01:10-02:10 UT nd, y fml ne
 - bright stars; Saturn and Jupiter very prominent in E; slight hint of glow in N. and perhaps of very faint vertical bands that may have been Auroral.

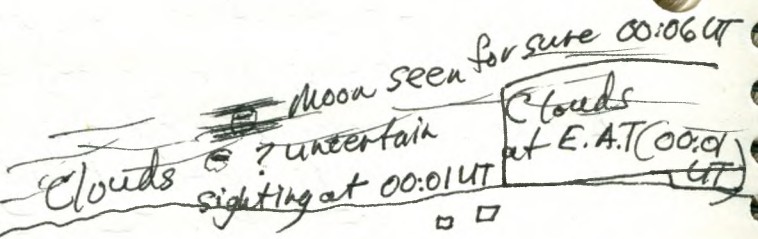
Th. Oct. 12 14:35-14:40 UT t C-8, 32
 sun 69 35 S RSN 95 T.O.F.

○
very near
Full Moon
later: 01:00 UT

Earth's Shadow
at 22:40 UT



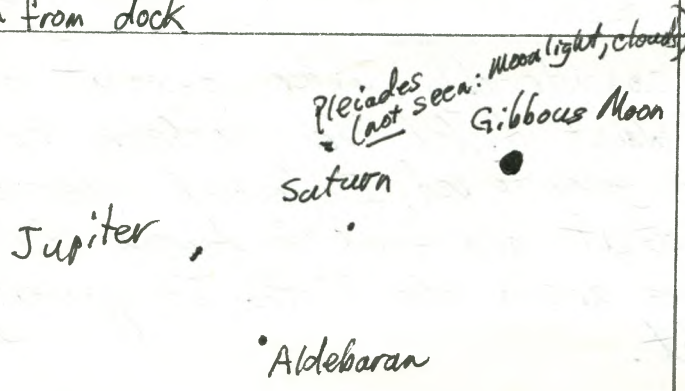
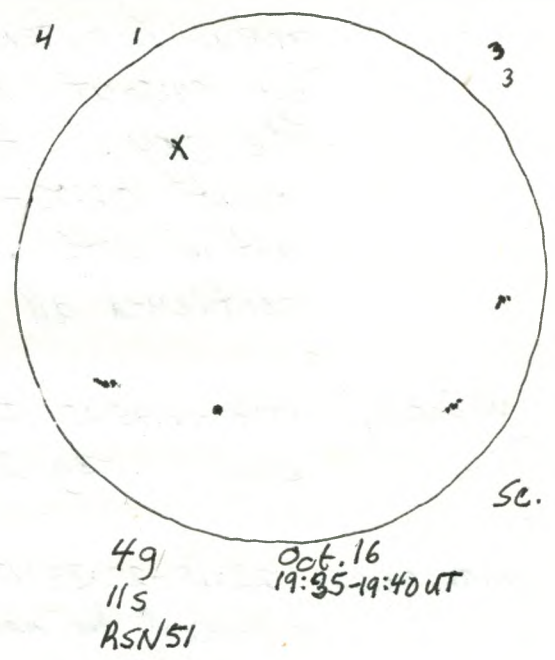
☾ Moon seen for sure 00:06 UT
Clouds at E.A.T. (00:00 UT)
☾ ? uncertain sighting at 00:01 UT



~~Sept.~~ Oct. 12-13 22:53 UT
Moon: very close to Full - Night of "Hunter's Moon"
- seen from dock

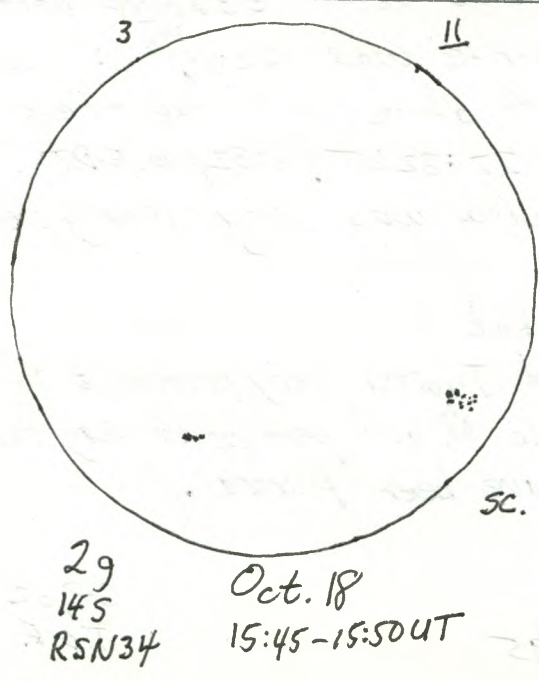
Oct. 14-15: 2 nights after Hunter's Moon.
E.A.T. 00:01 UT (8:01 p.m. E.D.T.)

Pleiades (not seen: Moon light, clouds)
Gibbous Moon
Saturn
Jupiter
Aldebaran

4 1 3 3
sc.
49
115
RSN51
Oct. 16
19:35-19:40 UT

Oct. 14-15 04:55 UT
- high in SE



3 11
sc.
29
145
RSN34
Oct. 18
15:45-15:50 UT

2000

Th.-F. Oct. 12-13 - 22:30-23:00 UT dock at lake tul ne

- saw earth's shadow very clearly for over 20 minutes before the moon rose. Moon was about 10 hours before Full (at 8:53 UT, Oct. 13) when it was first seen at about 22:53 UT (6:58 p.m. E.D.T.). It appeared enormous among the trees. I tried using my cupped hand or fist to isolate the trees and it appeared suddenly very small, of course. I watched it until it had risen almost completely above the trees. It was spotted 21 minutes later than the time of first sighting the previous night.
- 00:45-01:40 UT nd,y fml. ne

- bright stars; Jupiter and Saturn in E; strong hint of some Auroral activity in N. with a fairly noticeable glow up about 20° and hints of vertical bands and possibly even a hint of "flaming" or pulsation.

Sa.-Su. Oct. 14-15 23:50-00:10 UT dock at lake tul, clouds ne

- Glow from moon which had risen at 23:31 UT (7:31 p.m. E.D.T) for a while before I thought I might have seen the moon through a slit in the clouds at about 00:01 UT (8:01 p.m. E.D.T) and then I was sure of seeing it at 00:06 UT (8:06 p.m. E.D.T.) Later the moon was seen high in the sky away from clouds at about 02:40 UT (10:40 p.m. E.D.T.)
- 04:55-04:56 UT in ne

- High in S.E. I saw Jupiter, Saturn, and gibbous moon aligned as in the diagram on opposite page. Jupiter and Saturn were about 10° apart; Saturn and the moon were about 15° apart.

Oct. 16 19:35-19:40 UT t

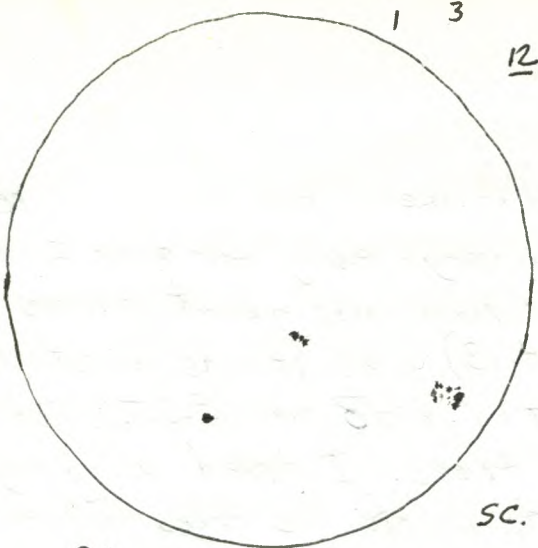
Sun 4g 11s RSN 51

C-8, 32
T.O.F.

Oct. 18 15:45-15:50 UT t

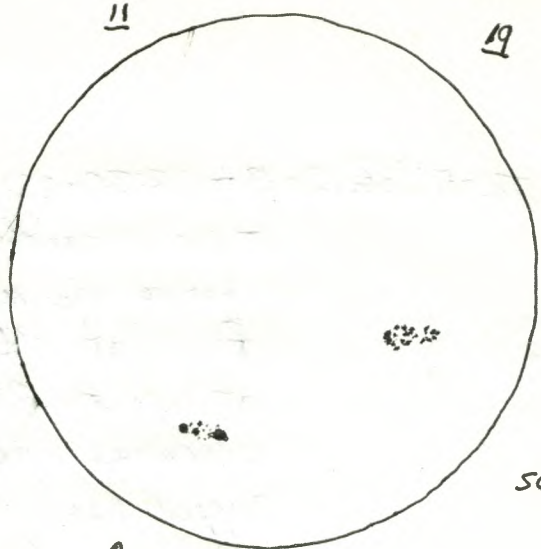
Sun 2g 14s RSN 34

C-8, 32
T.O.F.



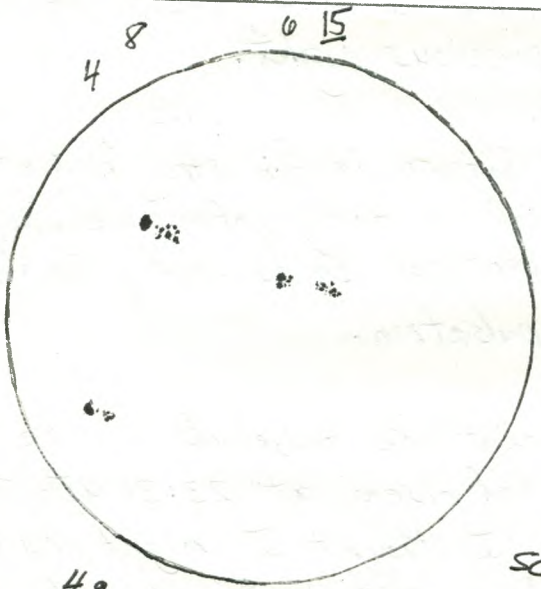
39
5
RSN

Oct. 19
16:05 - 16:10 UT



29
305
RSN50

Oct. 20
14:45 - 14:50 UT



49
335
RSN73

Oct. 23
14:50 - 14:55 UT

2000

Th. Oct. 19 16:05 - 16:10 UT t
Sun 3g 16s RSN46

C-8, 32
T.O.F.

Th.-F. Oct. 19-20 23:55 - 03:35 UT 00 SPT8-9 (slight mist) ^{at times} ne; 20x100b; C-14, 32

δ Cep -3.6 - ne: bright stars; constellations; β Lyr (near min. at mag. 4.4); β Per (mag. 2.2)
 δ Cep -3.9 δ Cep (between ϵ Cep and ϵ Cep in brightness^{2.9}); α Her (fainter than usual - perhaps mag. 5.); α Cet (Mira) (up-mag. 3 approx.)
 ϵ 4.2 Double Cluster; mag. 3 meteor near Per-Tau border, 15° long, \rightarrow SE at 1:55:40 UT; Saturn; Jupiter; Pleiades; Hyades;
 γ 3.3
 β Lyr -
 δ 4.1

- 20x100b: Neptune; Uranus; Barnard's Star area; T Cor Bor; R Cor Bor (? mag. 6.5); M13, M92, Col 299; M11, R Scuti area; Saturn, Pleiades; Jupiter; R Scuti (mag. 8.5 (?)); R Ceti (> 11 mag - not seen) (See U219); Double Cluster;
 - C-14, 32: M57 (Central star search with 19 um ocular - 206x, with 7.4 um - 528x - one very fleeting possible glimpse, but not for sure, with 5 um - 782x); M13 and nearby galaxy NGC 6207; Saturn and 2 satellites; Jupiter and 4 Galilean Satellites.

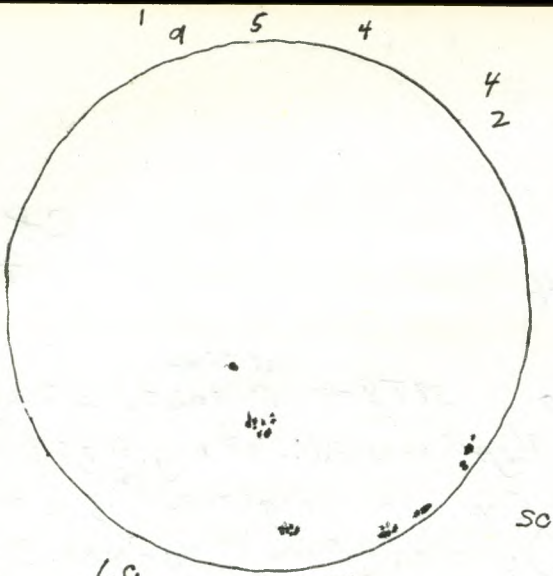
S.-M. Oct. 22-23 02:30 - 04:45 UT y, t S-8-9; T8.5-9 ne; C-8-32; 20x100b
 ne: β Lyr (slightly fainter than γ Lyr; mag. 3.5); β Per (at minimum of 3.4); δ Cep (fainter than both ϵ and ϵ Cep; near minimum; at mag. 4.3); α Cet (Mira) (at mag. 3.1 approx.; still very easily ^{seen as} one of the brighter stars in Cep); Jupiter - so bright its light cast a shadow; Saturn below Pleiades; fairly bright glow in N up about 15° that night have been Auroral; Orion rising over trees

C-8, 32: Jupiter and 3 Galilean moons; Saturn and Titan and possibly another moon (? Rhea)

20x100b: Uranus in Cap; R Peg (mag. 8; See U213); α Cet and area (See U219); R Ceti area (star not seen; > mag. 11); R Scuti (mag. 9); M77 (faint in binoculars; U220); M36, M37, M38, M45, Hyades

Mon. Oct. 23 14:50 - 14:55 t
Sun 4g 33s RSN73

C-8, 32
T.O.F.



69
255
RSN85

Oct. 28
15:05-15:10UT

50

1 a 5 4

4
2

2000

W.-Th. Oct. 25-26 23:15 - 23:35 UT nd twl

ne

fireball!

- bright stars including Arcturus in NW among the trees; bright meteor, about mag. -5, \rightarrow SE to W, appeared to split into two parts, one behind the other before it "burned up", with trail of about 30° and altitude of about 35° moving through Aquila south of Altair; β Per (Algol) clearly near minimum at mag. 3.4 (scheduled to be at min. at 00:28 - in about an hour)

02:00 - 02:30 UT y S-8.5 T 8-5 (mist; later fog) ne; 18x50 sb

ne: constellations; 3 meteors, 1 of which was seen in the binoculars, mag. 2-4, none of which was identified as a member of a shower; α Cet (Mira) easily visible at about mag. 3; β Per (Algol) near minimum at about mag. 3.4 but up to at the beginning of the session, but steadily climbing during the $1\frac{1}{2}$ hours until it was very noticeably brighter by about 3:00 UT and up to about mag. 2.5; β Hyrae at about mag. 3.7, probably about half way through its cycle; δ Cep - between the mag. of ζ Cep (3.6) and ϵ Cep (4.2) at about mag. 3.9
18x50 sb area of α Cet; Jupiter and 3 (possibly 4) Galilean moons since II (Europa) was very close to the planet, ~~since the Voyager perhaps too close to be easily seen~~, and was about to begin a Transit at 3:33 UT; M36, M37, M38, M45, Uranus, Neptune, Hyades.
Transparency decreased and intensifying fog was a problem near the end of the session.

- α Cet: 3- β Per seen
brightening:

3.4 - 2.5

- β Hyr: 3.7- δ Cep: 3.9III
• ○ I IV

F.-S. Oct. 27-28 00:37 - 00:42 UT nd

cloudy

ne

- saw only a few stars on a cloudy, windy night, but there was a large glow in N-NW that may have been Auroral.

S. Oct. 28 15:05 - 15:10 UT

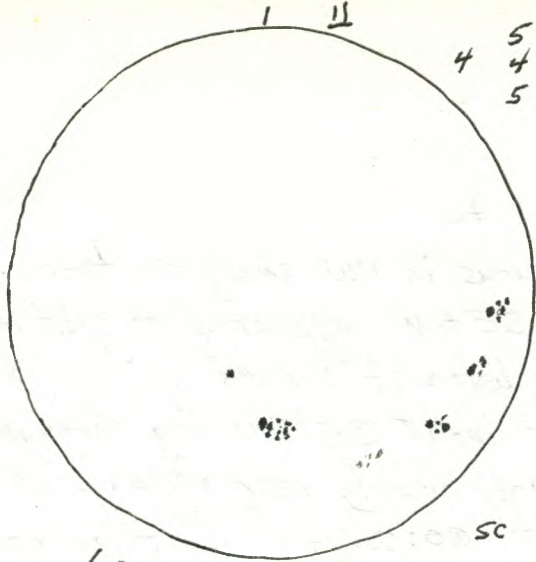
sun 6g 25s RSN 85

C-8, 32

T.O.F.

S.-S. Oct. 28-29 23:20 - 04:20 UT 00, y S-8(?) T 9 ne; 20x100 b

ne: constellations; β Per (Algol) clearly down at about mag.



69
305
RSN90

Oct. 29
1855-19:00

[Faint, illegible handwritten notes in the right column of the notebook page.]

2000

β Per:
on the rise

3 at the beginning of the session, but "came up" to max. (mag. 2.1) by about 00:30 UT.; β Lyrae very close to mag. of γ Lyrae (mag. 3.3) or about at mag. 3.5; δ Cep about half-way between ζ (mag. 3.6) and ϵ (mag. 4.2) or at about mag. 3.9; α Ceti (Mira) still bright and easily seen at about mag. 3.0.; an absolutely splendid Aurora throughout the session and probably all night or most of it, beginning with large patches and sheets of red in NW and W., gradually changing to vertical bands and spikes with less red and more white, faint yellow and possibly pale green up to about 40° and later up to the zenith. Later there was considerable "flaming" and pulsation and rapid movement of bright patches. I as photographed the display. The yard appeared as bright, or brighter than, if a full moon were shining, although the slim crescent moon had set. Eventually the whole northern half of the sky was filled with the Aurora. It was one of the best displays in a while, certainly since Oct. 4-5, and perhaps better than that one of 24 days ago.

Aurora!

bright!

20x100b: Neptune, Uranus in Cap., Helix Nebula (NGC 7293) in Aquarius (U347) near γ Aqr; NGC 253, G-S in Sculptor S. of β Ceti (U307); M36; M37; M38; Pleiades; Hyades; Jupiter and 4 moons; Saturn.

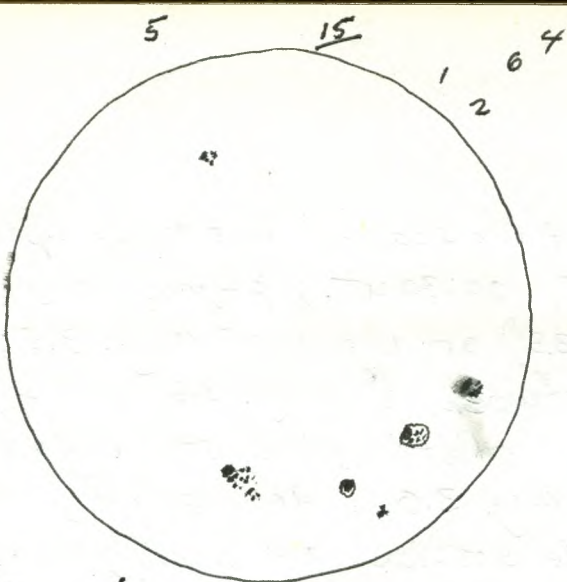
W.H.
... O III
Jup.

Su. Oct. 29 18:55 - 19:00 UT t
sun 69 30s RSN 90

C-8, 32
T.O.F.

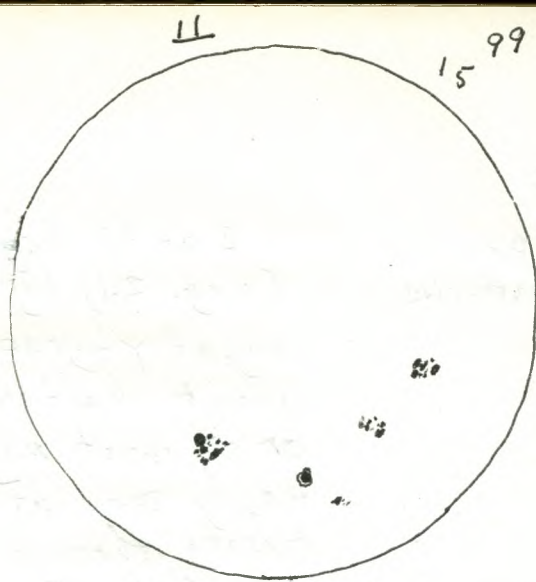
S.-M. Oct. 29 - 30 ~~19~~ 23:35 UT y twl ne
- crescent moon seen among trees in W., but Venus below the moon and to the right was not seen among the trees.

00:20 - 04:20 UT 00, y 58-9, T 9 ne; 20x100b
- ne: β Per at mag. 2.1; β Lyr at mag. 3.4, slightly fainter than γ Lyr; δ Cep. about .1 mag. fainter than ζ Cep and so at about mag. 3.7; α Ceti still bright at mag. 3.0; a very



69
335
RSN93

Oct 30
15:10-15:15 UT



59
355
RSN 85

Oct 31
15:10-15:15 UT

2000

Aurora.

interesting Auroral glow up about 15° but without much colour, one which became fairly active beginning about 03:20 UT and for 10 minutes or more had vertical bands and hints of pulsation, but it stopped being very active after about 03:30 UT. The glow continued from NW to N. and up about 10° to 15°.

20x100b: Neptune, Uranus, Helix Nebula in Agr, α Cet area, RSCet about mag. 9. RCet > mag. 11 since it was not seen, Jupiter and 4 moons; Saturn, Hyades, Pleiades, NGC 253 a galaxy in Sculptor S. of β Ceti; M36; M37, M38, Double Cluster in Per; M35; M42 in Orion.

Jup.
0

M. Oct. 30 15:10-15:15 UT
Sun 69 335 RSN93 C-8, 32 T.O.F.

M.-T. Oct. 30-31 22:05-22:40 UT dock twl ne

-watched the earth's shadow moving upward in NE and easterly direction

23:25-23:35 UT y twl ne

fireball-
-8 mag.

-bright stars and fall constellations; at 23:27 UT a very bright fireball in S., estimated at mag. -8 descending and going to the right from about 10° up from the horizon to about 5° above the horizon. It was seen among the trees.

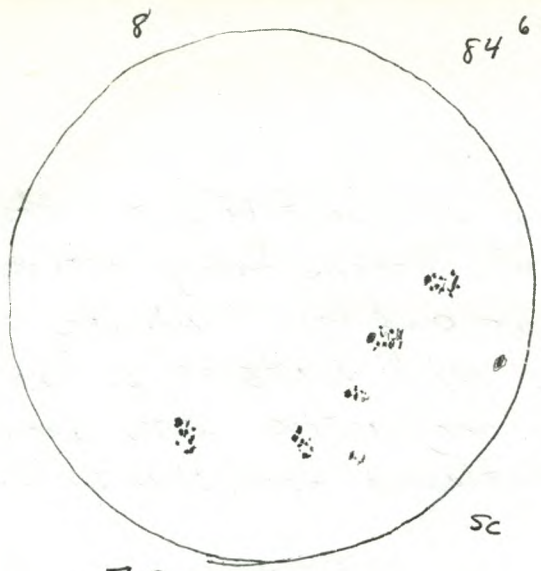
01:20 - 02:20 UT y 5-8-9, T8.5-9 ne; 20x100b; AST; 12 1/2

ne: constellations; β Per - up at mag. 2.1; δ Cep at mag. 3.9 (between mag. of ϵ and ζ Cep); β Lyr at mag. 3.5 (fainter than γ Lyr but not as faint as δ Lyr); α Cet - at mag. 3.0 approximately; Jupiter and Saturn very bright, a faint Auroral (possibly) glow in the N and NW.

20x100b: M11 and RScuti area; Uranus, Neptune; Helix Nebula in Agr, α Cet area and RSCet at about mag. 9, RCet - not seen and therefore > 11 mag. NGC 253 G.S. S. of β Cet. Saturn, Jupiter and 4 moons (?); Pleiades; Hyades; M36, M37, M38, M35.

IN AST

AST, 28, 19, 8: Jupiter and moons, Saturn, Pleiades.



79 Nov. 1
515 16:45-16:50 UT
RSN 121

84 6 12 12
1

SC

2000

12½: with Denise and using 32mm, 17mm and 12mm eyepieces I observed Jupiter, Saturn and β Cyg, though not all eyepieces were used on all of them.

Tu. Oct. 31 15:10 - 15:15 UT t

Sun 5g 355 RSN 85

C-8, 32
T.O.F.

T.-W. Oct. 31 - Nov. 1 02:00 - 03:20 UT in Perth
in Perth
SRT 6-7 (light pollution) ne; 20x100b; Ast, 8
Fireball ne: a bright fireball about mag. -6, probably a Taurid, fairly low in SW, train about 10°

About 10 students from the Astronomy course at Algonquin College and I observed at Last Duel Park in Perth. We observed the bright stars and a good number of constellations. β Per was mag. 2.1; δ Cep was difficult to observe; β Ugr was about mag. 3.6; α Cet (Mira) was about mag. 3.9

20x100b: Hyades; Pleiades; M36, M37, M38.

Ast, 8: Jupiter and 2 moons: II Europa and IV Callisto; Saturn and Titan.

W. Nov. 1 16:45 - 16:5 UT t

Sun 7g 515 RSN 121

C-8, 32
T.O.F.

W.-Th. Nov. 1-2 01:22 - 04:20 UT 00 S-84 T9 ne; 20x100b; C-14, 32; 18x50 15b

ne: Constellations; Jupiter and Saturn in Tau; 2 meteors, one 4.3 about mag. 4, one about mag. 1; δ Cep - mag. 4.2; β Ugr down mag.

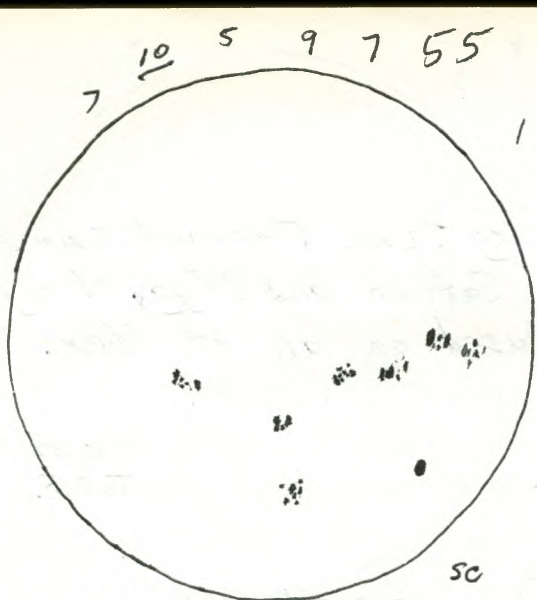
β Per: 2.1
 α Cet: 3.7
* β Ugr - near
Min.

20x100b: Uranus in Cap; NGC 253 in Sculptor; α Cet area including α^2 RSCet - about mag. 9, and RCet not seen and so > mag.

11; Jupiter and 2 moons, Saturn, Pleiades, Hyades, M36, M37, M38,

C-14, 32: M15, γ Arietis - an excellent double; Jupiter and 2 moons; Saturn and Titan;

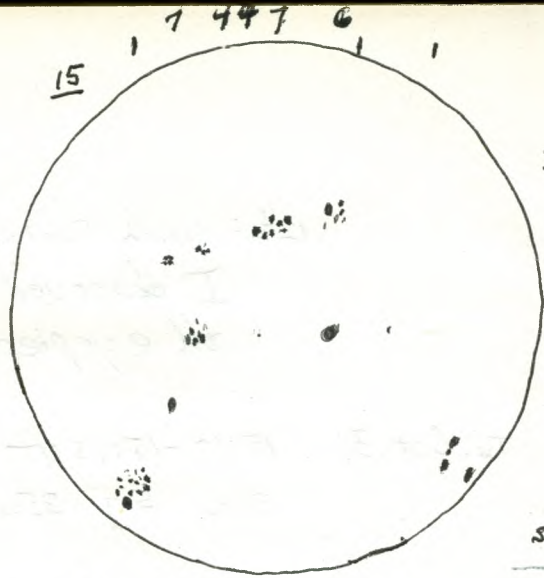
18x50 15b: α Cet area including RSCet, but RCet not seen, Jupiter and 2 moons, Saturn, Pleiades, M36, M37, M38, Double Cluster in Per.; areas in Orion.



89
485
RSN128

Nov. 2
14:55-15:00UT

SC



109 Nov. 5
50S 17:30-17:40UT
RSN150

SC

31

2000

Th. Nov. 2 14:55 - 15:00 UT t

C-8, 32

Sun 8g 48s RSN 128

Th.-F. Nov. 2-3 02:45 - 04:00 UT y S-8(?) T9, but cloudy in W, NW ne; 18x5015b
 3 meteors. ne: bright stars; 3 fairly bright meteors - all from different directions; β Per mag: 2.1; δ Cep about mag. 4.0; α Cet about mag. 3.7.
 18x5015b: Hyades, Pleiades, Saturn, Jupiter and 4 moons, M36, M37, M38, M35, α Ceti and area including RS Ceti at about mag. 9 and R Ceti not seen and β at mag. > mag. 11; Double Cluster; areas in Cep including μ Cep, the Garnet Star; M42 and areas near it in Orion.

- μ Cep

F.-S. Nov. 3-4 22:45 - 23:15 UT y, dock twl ne

- First Quarter Moon in S, Venus in WSW view from the dock; β Per mag. 2.1; α Cet mag. 3.9; δ Cep mag. 3.5 (MAX!); β Lyr mag. 3.6.

- δ Cep - Max.

- fireball mag. -6

-- 02:24 - 04:12 UT y S-8 T7-9 (fog patches in S+W; fog m.b.) 18x5015b
 - (brilliant mag. -6 meteor (fireball in S) in constellations Cetus and Eridanus); Hyades; Pleiades; Saturn, Jupiter and 2 or 3 moons (2 were very close to each other), M36, M37, M38, M35, α Ceti area including RS Ceti (about mag. 9) but R Ceti not seen; M34; Double Cluster and area
 - Glow in N. that was probably Auroral - up about 15° - 20°.

Su. Nov. 5 17:30 - 17:40 UT t

C-8, 32, 28
T.O.F.

Sun 10g 50s RSN 150

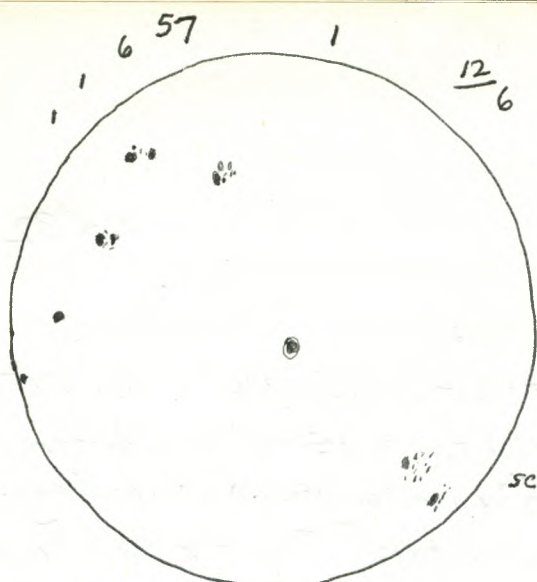
Su.-M. Nov. 5-6 21:40 - 21:45 UT deck ne

- earth's shadow

- Denise and I observed the moon, almost 2 days after First Quarter, low in the SSE sky and the earth's shadow in the NE. as it rose after sunset

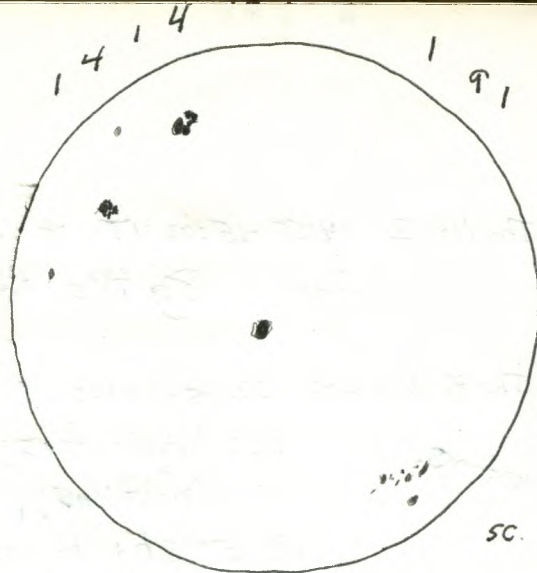
-- 02:45 - 03:45 UT y S-8(?) T7 (gml) ne

- bright stars in the bright gibbous moonlight - hoping to see a Taurid meteor, but did not see any bright ones; β Per (Algo) at



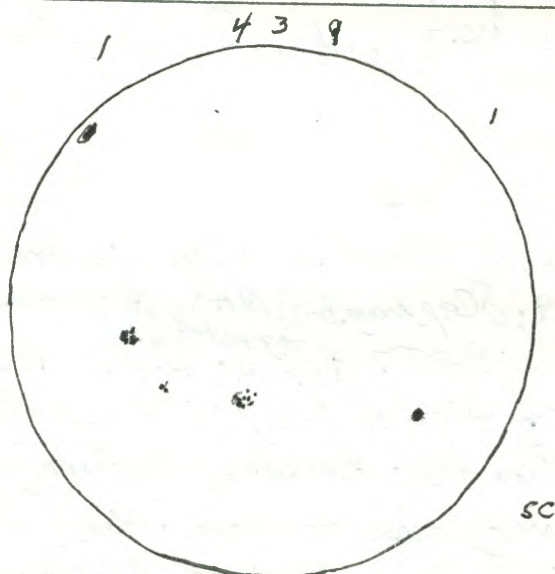
8g
29S
RSN 119

Nov. 6
15:15-15:20UT



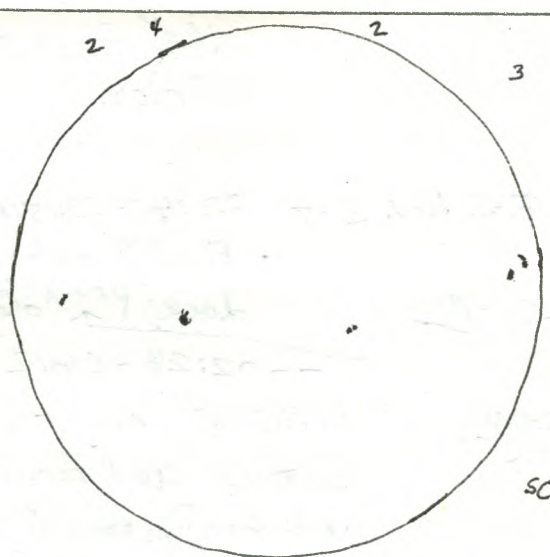
7g
21S
RSN 91

Nov. 6
15:00-15:05 UT



5g
18S
RSN 68

Nov. 12
15:55-16:00UT



4g
11S
RSN 51

Nov. 14
15:50-15:55 UT

2000.

about mag 2.1; β Pyrae at about mag 3.8; δ Cet difficult to see because of moonlight; δ Cep difficult to see in the moonlight. A glow in the N. might have been Auroral

M. Nov. 6 15:15-15:20 UT

sun 8g 39s RSN 119

C-8, 32
T.O.F.

M.-T. Nov. 6-7 03:15-04:15 UT y S-7(2) T6-7 (gal.) ne

Aurora.

3 meteors.

Taurid
fireball!

- Under a bright gibbous moon, I observed bright stars and an Auroral display that would have been very good except for the bright moonlight. It became more active with the glow intensifying and extending up from about 15° to about 40° at about 03:30 UT, but later it receded somewhat. There was some pulsation noted and vertical bands. There was not much colour in the Aurora. There were 3 meteors: one about mag. 3.5, one about mag. 2 in Cygnus that seemed to have come possibly from about the cup of the Little Dipper in Ursa Minor (though it is much too early for it to be an Ursid), and 1, at about 03:40:20 UT, a -4 mag. fireball that was about 10° - 12° long and in the cup of the Big Dipper and probably another Taurid fireball.

Later in the night I looked out a N. window twice and saw that the Aurora had continued with a strong glow in the N to NW.

Tu. Nov. 7 15:00-15:05 UT t

sun 7g 21s RSN 91

C-8, 32

Su. Nov. 12 15:55-16:00 UT t

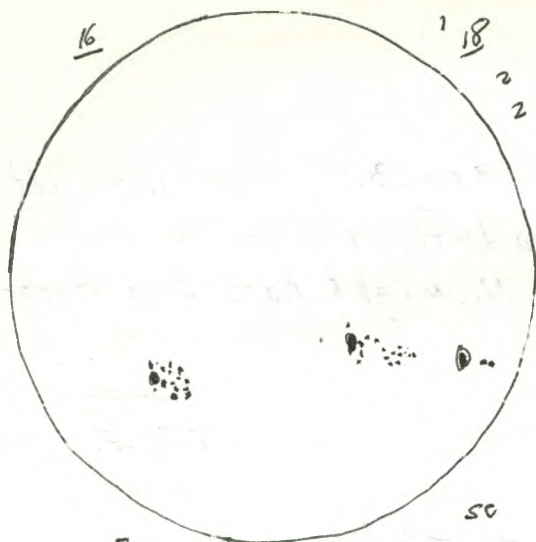
SUN 5g 18s RSN 68

C-8, 32
T.O.F.

Tu. Nov. 14 15:50-15:55 UT t

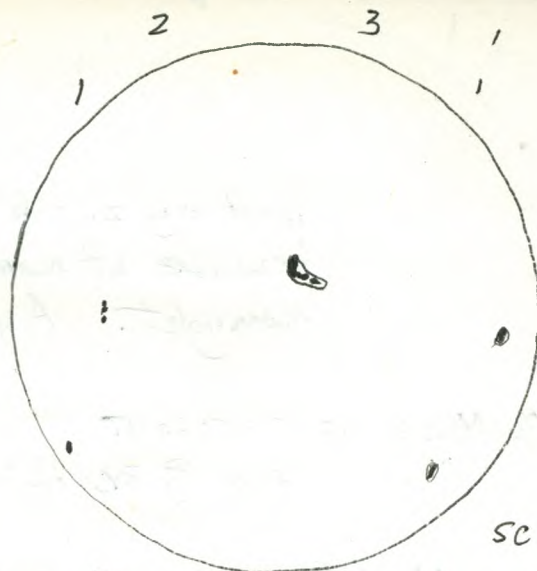
SUN 4g 11s RSN 51

C-8, 32
T.O.F.



5g
39s
RSN 89

Nov. 19
15:40-15:45UT



5g
85
RSN 58

Nov. 23
16:55-17:00UT

2000

F-S. Nov. 17-18 22:50-23:30 UT 00 S-8T9

20x100b

- Uranus, Neptune, M45, M13, M92, M71, Saturn,

- 01:30-04:00 UT 00 S-8T7 (lgmb.) 20x100b; C-14, 32

- 20x100b: WAnd (U62) near γ And; RUMa (U24) N. of the star Dubhe and also the stars VW UMa and VY UMa, both of which were fairly near RUMa (U24), Jupiter and 4 moons. ne: β Per noted near minimum, later up to max.- C-14: γ Arietis, Saturn and Titan - Cassini's Division - superb!; Jupiter and 4 moons ALSO PHOTOGRAPHED AREAS OF CRION AND TAURUS.

- 07:20-10:00 UT 00 S-8T7 (lgmb.) ne

Leonids!

ne: a superb display of Leonid meteors, as predicted, at least as far as the probable time for the best of the display. I counted 40 Leonids between 07:20 and 8:20 UT, and there were also 3 bright meteors that were not Leonids. During that time they seemed to be occasionally in groups of 2 and were quite bright, often mag. 1 or 0 or -1. I also had the impression that I was missing quite a few faint ones because of moonlight. I continued observing until about 10:00 UT (5:00 a.m. E.S.T.) and saw a number of bright Leonids. In spite of a bright third-quarter moon near the radiant in Leo, this display was excellent, and the weather was very good. Mars in Virgo in S.E. morning sky.

Su. Nov. 19 15:40-15:45 UT t

Sun 5g 395 RSN 89

C-8, 32
T.O.F.

Th. Nov. 23 16:55-17:00 UT t

Sun 5g 85 RSN 58

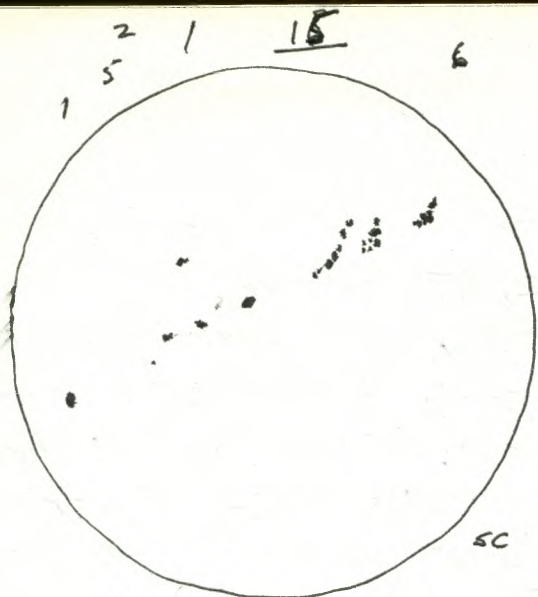
C-8, 32

Th.-F. Nov. 23-24 02:30-03:20 UT y

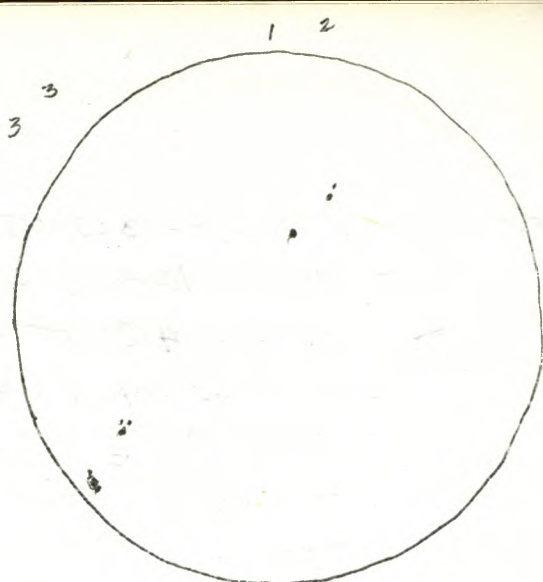
S-8T9

ne

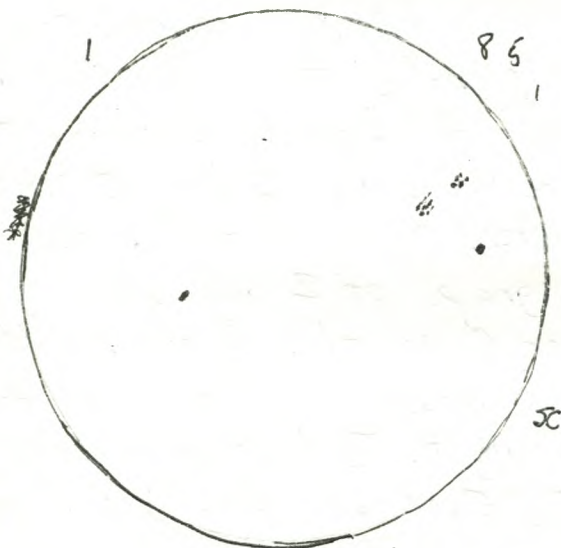
- observed Jupiter, Saturn, bright stars and constellations
- photographed areas of Taurus, Orion, and Gemini.



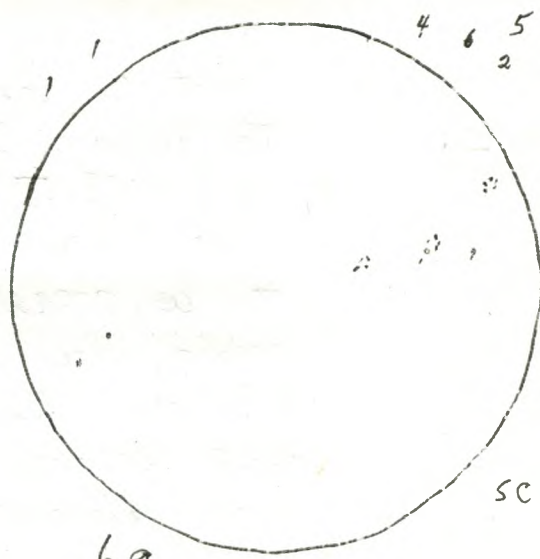
69 Jan. 11
305 18:25-18:30UT
RSN 90



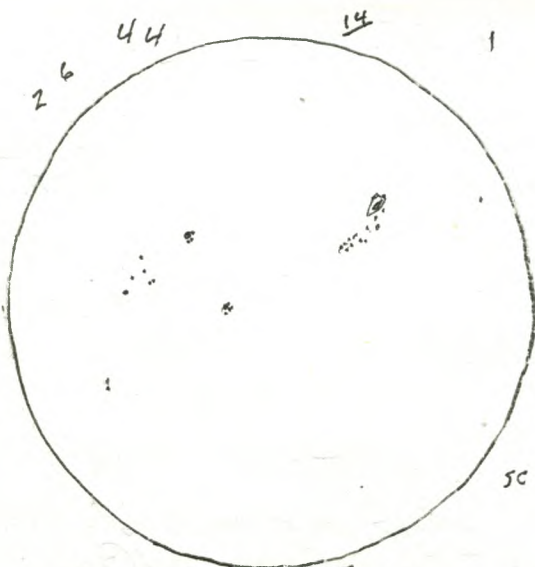
49 Jan 17
95 18:35-18:40 UT
RSN 49



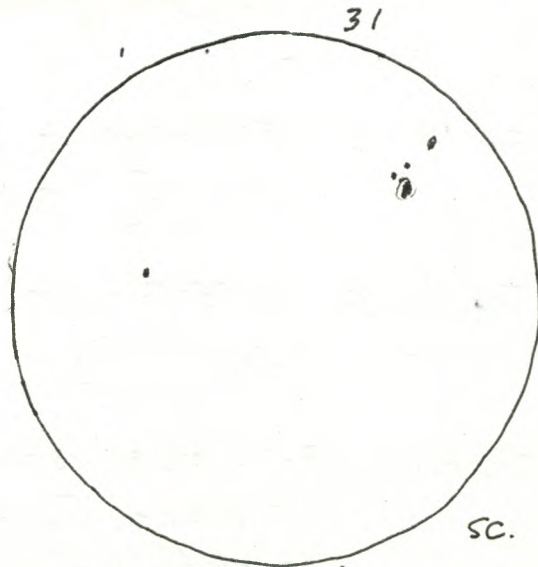
49 Jan. 20
155 17:30-17:35UT
RSN 55



69 Jan. 22
195 17:30-17:35UT
RSN 79



69 Jan. 25
315 18:00-18:05UT
RSN 91



39 Feb. 1
55 18:15-18:25UT
RSN 35

Relative Sunspot Numbers

Date: My
 2000 Observation

Mar. 5. 132

1820 8 138
 12 80
 13 80
 14 67
 17 85
 18 94
 23 132
 24 167
 31 113

Apr. 10 65
 12 88
 13 124
 25 103
 28 84
 May 2 48
 3 22
 6 11
 7 38
 12 118
 16 98

1840 19 124
 29 59

June 3 50
 7 68
 20 101
 30 119

July 4 90
 6 86
 7 89
 11 137
 12 107
 13 125
 14 102
 20 285
 24 156
 25 106
 26 85
 27 82

Aug. 5 92
 12 87
 13 120
 14 94
 15 103
 16 94
 17 85
 19 56
 20 56
 24 70
 25 74
 27 77
 28 96
 31 98

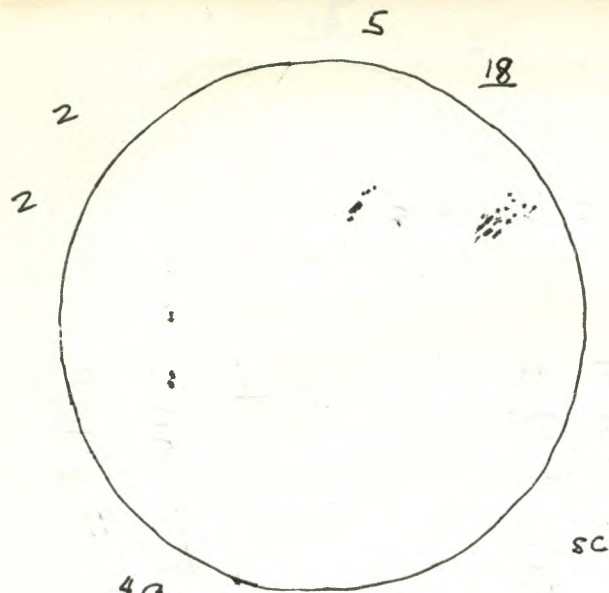
Sept. 4 76
 5 56
 7 66
 9 27
 13 11
 17 74
 19 122
 20 109
 21 106
 1880 22 143
 24 117
 25 125
 26 108
 28 76
 29 98

Oct. 1 81
 3 89
 4 126
 11 56
 12 95
 16 51
 18 34
 19 46
 23 73
 28 85
 29 90
 30 93
 31 85

1900 Nov. 1 121
 2 128
 5 150
 6 119
 7 91
 12 68
 14 51
 19 89
 23 58

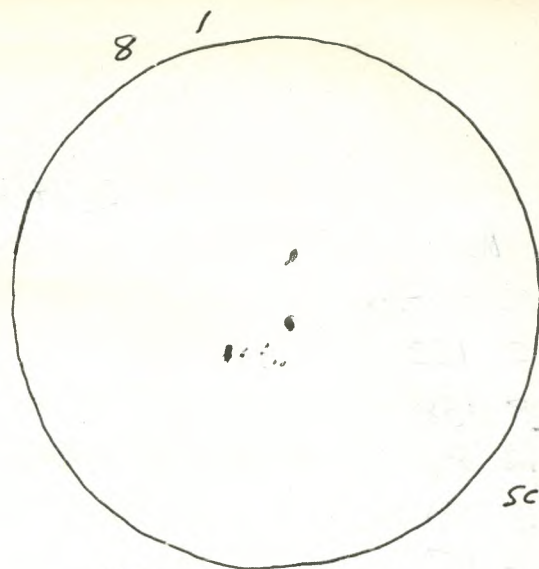
2001 Jan. 11 90
 17 49
 20 55
 22 79
 25 91

Feb. 1 35
 3 67
 10 29



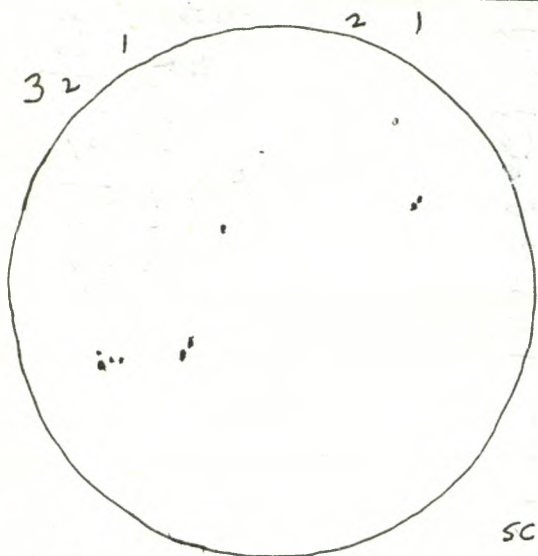
49
275
RSN 67

Feb. 3
17:50-17:55UT



29
95
RSN 29

Feb. 10
15:45-15:50UT



59
95
RSN 59

Feb. 11
17:35-17:40UT

650 and
651

Slides for RASC.-K.C. Meeting Fri. Mar. 10, 2000.

Slide #	Description	Time	Duration	Notes	Time
1	title			Elitechrome 400	
2	(96-6) AE eclipse	10:54 pm. E.S.T.	10 1/2 min	b. U2 P(6)	U1 - 10:01:30 Jan. 20-21 Total Lunar Eclipse
3	(-7)	10:59	5 1/2	" P(7)	(4)
4	(96-8) PV ✓	11:00	4 1/2	" P(8)	
5	(96-9) PV ✓	11:02	2 1/2	" P(9)	
6	(-10)	11:16	12 min	after U2 (12)	- U2 11:04:37
7	(96-11) PV ✓	11:47	3 1/2 min	after mid-d (14)	- 4 sec. - Mid-E 11:43:31
8	(96-12) PV ✓	11:47	4	" P(15)	- 8 sec. (9)
9	(96-14) PV ✓	12:00	16	" P(17)	- 10 sec.
10	(96-15) PV ✓	12:00	16	" P(18)	- 12 sec.
11	(96-18) PV ✓	12:08	14 min	before U3 P(24)	- 10 sec.
12	(96-19) PV ✓	12:09	13	" P(25)	- 8 sec.
13	(96-20) PV ✓	12:16	6	" P(26)	- 8 sec.
14	(96-21) PV ✓	12:17	5	" P(28)	- 10 sec.
15	(-22)	12:29	7 min	after U3 (30)	- 7 sec. (2)
16	(96-23) PV ✓	12:29	7	" P(31)	- 4 sec.
17	Moon-Venus Conjunction Feb. 2		135 min	P(30)	- U3 12:22:24
18	(-31)		"	(36)	- U4 1:25:30
19	(-25)		200 min	(13)	
20	(-24)		"	(12)	
21	(96-28) P		400 min	(24)	
22	(96-27) P		11	P(20)	

Mar 24 Theatre D Judith Irwin

Local Mean Sidereal Time

2000: $6^{\text{h}} 59^{\text{m}} 09^{\text{s}} 264$
For 1999:
L.M.S.T. = $6^{\text{h}} 61^{\text{m}} 47^{\text{s}} 504 + 0^{\text{h}} 06^{\text{m}} 57^{\text{s}} 098244d$
+ $1^{\text{h}} 00^{\text{m}} 27^{\text{s}} 3790934t - 5^{\text{h}} 11^{\text{m}} 23^{\text{s}} 737$

Longitude: W. $76^{\circ} 40' 06.''818$
 $76^{\circ} 066856055$
 $5^{\text{h}} 11^{\text{m}} 23^{\text{s}} 737$
 $5^{\text{h}} 06^{\text{m}} 40^{\text{s}} 454532$

Latitude: N. $44^{\circ} 45' 32''$
 $44^{\circ} 0758$

FABRIQUE
MADE IN