

Volume

4

**February 22, 1987
to
December 12, 1988**

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heavyweight paper - papier épais

science note book cahier de sciences

name-nom LEO ENRIGHT

subject-sujet OBSERVING LOG Feb. 22, 1987 - Dec. 12, 1988

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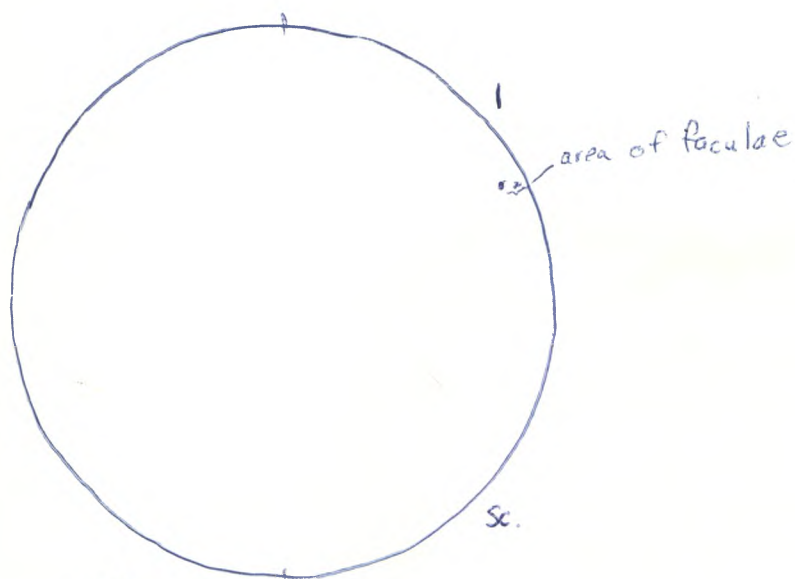
Temple 2 9/10/41 UT

Saturn
6811 - open Cluster Cygnus
185 - Galaxy - Andromeda
147 - Galaxy - "

OBSERVING LOG



[Faint, illegible handwritten notes, possibly bleed-through from the reverse side of the page.]



1915
RSNH

Feb. 26

- Venus seen in
morning - Feb 24, 25, 26
crescent moon seen
near Venus Feb. 24 and
also Feb. 25 - well past
Venus.

Feb. 26:
about 6:15 am - phoned Skyline and

found out about discovery of a
supernova in the Large Magellanic
Cloud on Feb. 23 at 3^h UT.

- in NGC 2044
- at mag 4.5 and probably brighter
- discovered in Chile
- called Supernova Shelton - 1987-I
after Canadian Ian Shelton who
discovered it while in Chile.

1987 Su Feb. 22 20:50-20:55 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m
sun Og Os RSNO

M. Feb. 23 20:50-20:55 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m
sun Og Os RSNO

M.-T. Feb. 23-24 01:50-02:40 UT y S8(?) T9.5 11x80b
R Lep, Mira, M41, M42, M43, M51, M44, M45, h + χ Persei,
M81, M82, M65 and M66.
Zodiacal Light was very bright.

Tu. Feb. 24 21:22-21:28 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m
sun Og Os RSNO

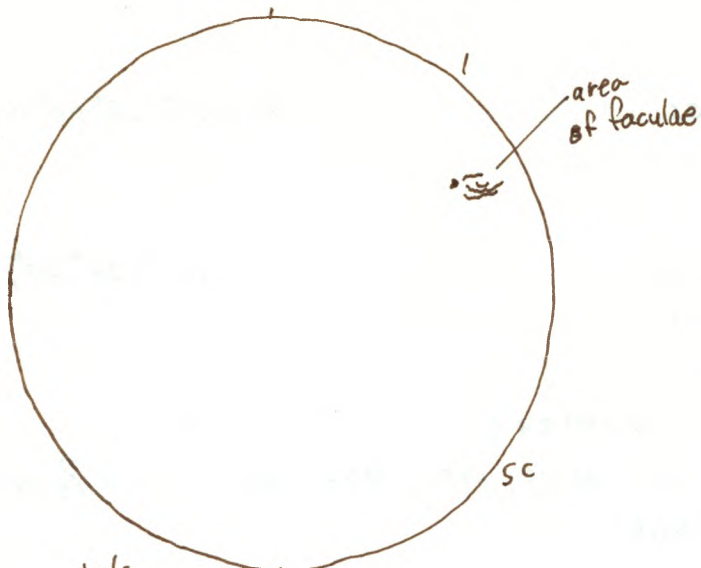
T.-W. Feb. 24-25 02:00-04:00 UT y, table at ss S8(?) T9.5 11x80b and Astroscan
Zodiacal Light bright, Mira,
in binoculars: R Lep, RR Lep (threshold), RX Lep, ER Ori (threshold),
(TLep - not seen), M108, M97, M51, M101, ZUMA, M40,
M79 (TLep - not seen)
in Astroscan M65, M66, M106, M40

W.-Th. Feb. 25-26 02:00-04:20 UT y and ss S8(?) T9 11x80b and C-8 732^m
with 11x80 binoculars: R Lep, RX Lep, M41, M42, M43, M45, ZUMA,
M101, M51
with C-8: Mizar, Cor Caroli (α CVV), M94, M63, M53,
M51, η Per - double star, σ Ori - multiple star

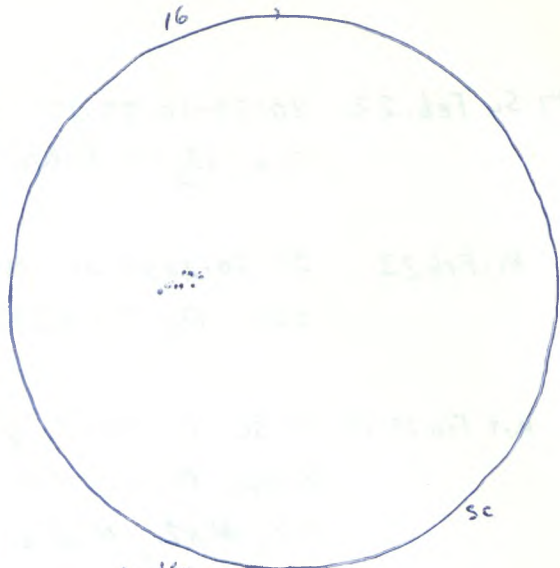
Th. Feb. 26 21:28-21:34 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m
sun dgls RSN II faculae seen near spot.

Th.-F. Feb. 26-27 01:20-01:45 UT y S8 T9 ne and 7x35b
R Lep, RX Lep, M44, M40, ZUMA, Mira.
Zodiacal Light - very bright.

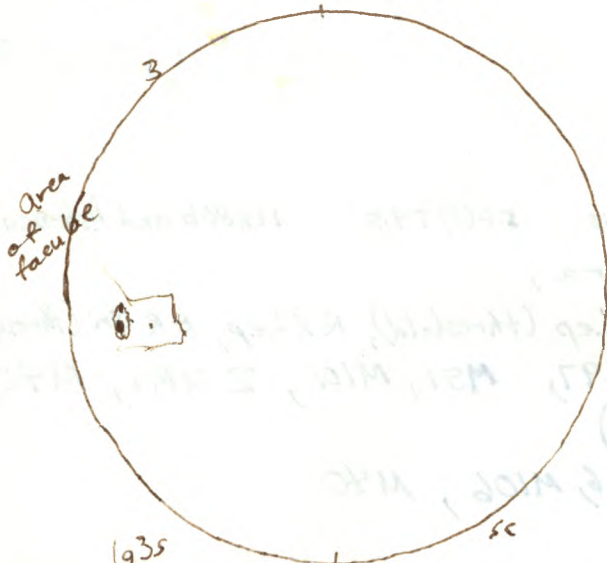
07:30-08:06 UT u deck S8(?) T9 ne and 11x80b
M65, M66, M3, M13, M57, M82, M44, M67



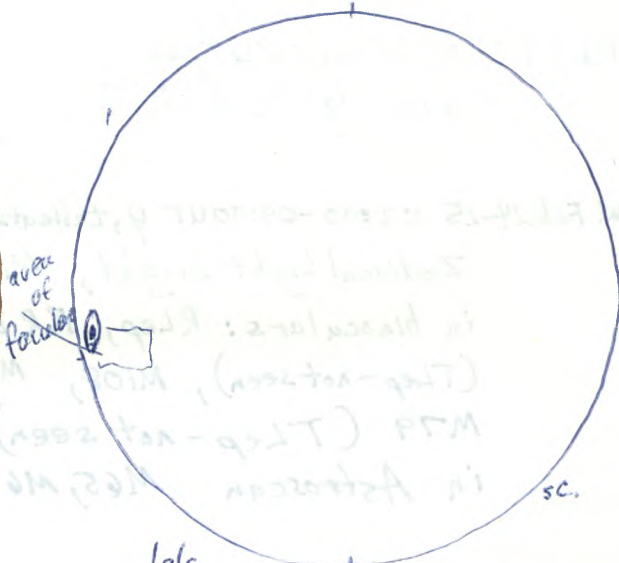
1915
RSN11 Feb. 27



1916
RSN26 Mar. 5

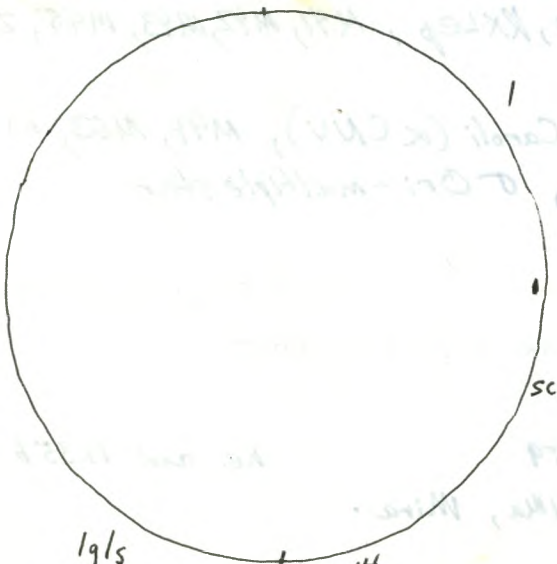


1935
RSN13 Mar. 9

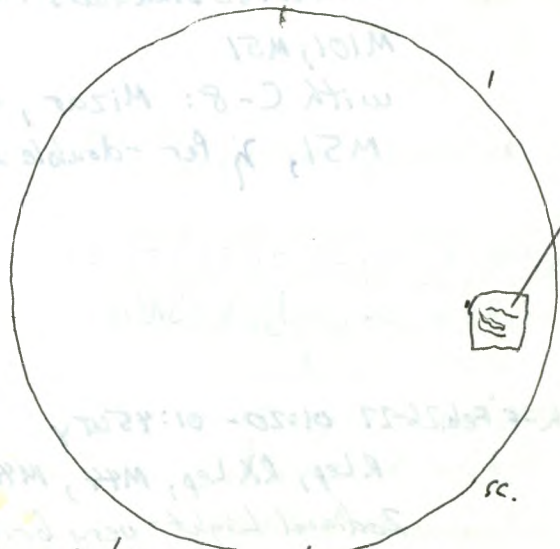


1915
RSN11 Mar. 10

Mar. 10, 6 a.m.
Venus seen
in morning



1915
RSN11 Mar. 14



1915
RSN11 Mar. 16

1987 F. Feb. 27 20:48-20:54 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
Sun lg ls RSN11 faculae seen near spot.

F.S. Feb. 27-28 8:20-8:38 UT a. deck increasing cloud 11x80 b
M57, M13, area of North America Nebula, Elyrae, constellation
Cygnus which was rising.

Th. Mar. 5 21:25-21:30 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
Sun lg l6s RSN26

M. Mar 9 21:05-21:15 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
Sun lg 3s RSN13 - faculae near spots - possibly other smaller spots

Tu. Mar. 10 21:05-21:10 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
Sun lg ls RSN0 spot very near limb - possibly other spots.

Th. Mar. 12 21:30-21:35 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
Sun Og Os RSN0 somewhat hazy and cloudy

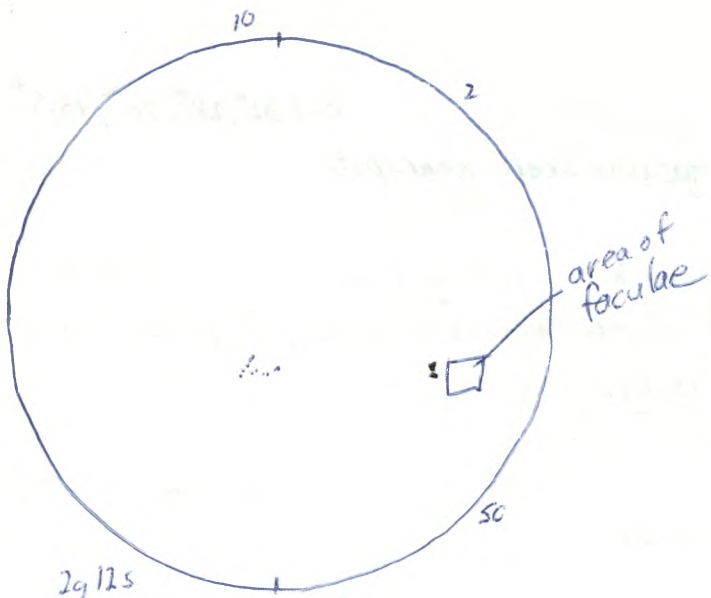
F.F. Mar. 13 20:33-20:36 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
Sun Og Os RSN0

F.S. Mar. 13-14 5:30-6:22 UT Table at SS Astro, 28^m, 19^m, 12^m, 8
Mizar, M13, M92, α CNV, T Cor Bor, α Gem, ϵ Lyrae.
Special guest observer: Warren Morrison

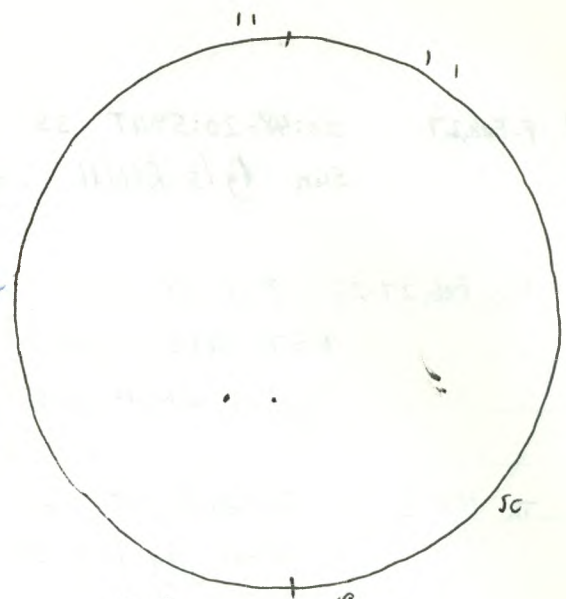
Sa. Mar. 13-14 14:35-14:40 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
Sun lg ls RSN11 granulation seen.

M. Mar. 16 17:00-17:05 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
Sun lg ls RSN11 granulation seen, faculae following spot.

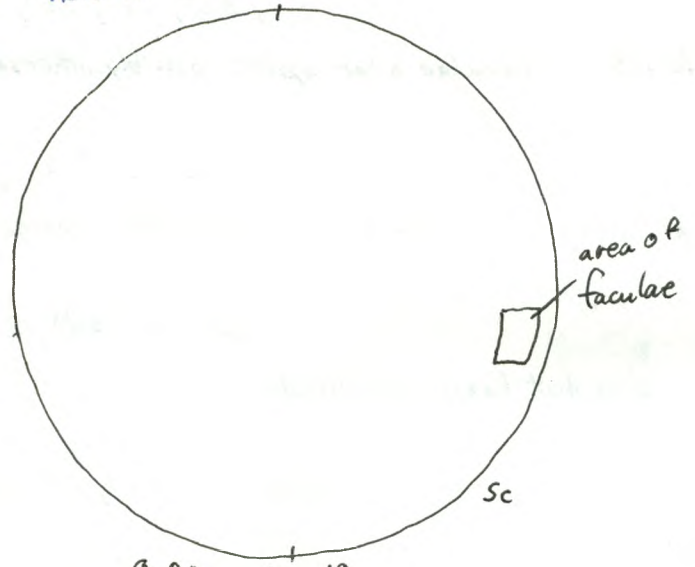
M.T. Mar. 16-17 1:45-1:50 UT y s-8(?) T6(?) 7x35 b
just after moonrise and just before ~~beginning~~ end of astronomical twilight
observed M35, M42, M45.



2g 12s
RSN32 Mar. 17



4g 4s
RSN44 Mar. 18



0g 0s
RSN 0 Mar. 19

1987 Tu. Mar. 17 17:02 - 17:10 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 2g 12s RSN 32 spots near centre of disk quite small
and faint; faculae seen, "following" "double-spot"

T-W
Mar. 17-18 1:40 - 2:03 UT Y 59(?) T 9 11x80b
M41, M42, M43, M45, Z UMa, RLep, RXLep
Zodiacal Light very bright, at core brighter than Milky Way.

W. Mar. 18 17:55 - 17:59 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m
sun 4g 4s RSN 44 central spots small

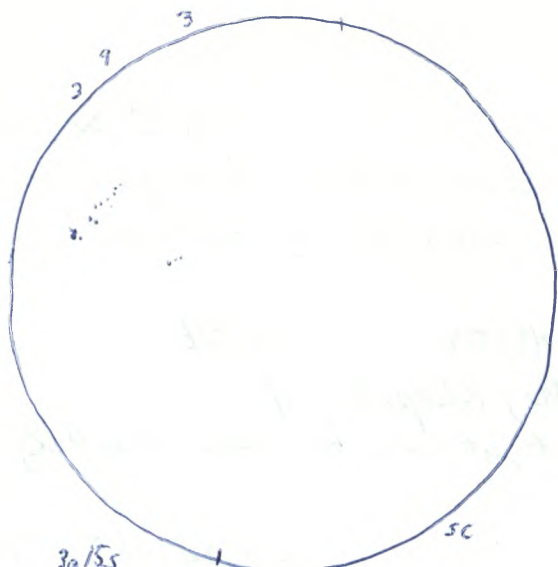
Th Mar. 19 21:24 - 21:32 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m
sun 0g 0s RSN 0 spots had disappeared; granulation and faculae
also seen near one part of "approaching" limb.

Th.-F Mar. 19-20 1:15 - 5:15 UT Y and 00. 59(?) T 9 (some cloud) 11x80b, C-14, 32^m
with binoculars: M42, M43, RXLep, RLep.
with C-14: NGC 3593 (spiral g. in Leo), NGC 2628 (excellent
edge-on spiral) M95, M96, NGC 3596 (roundish spiral
south of σ Leonis), Castor (elongated, if not totally split)
 σ Orionis (multiple star), M42, M43, Trapezium (examined
with 13^m Nagler and 9^m Nagler)

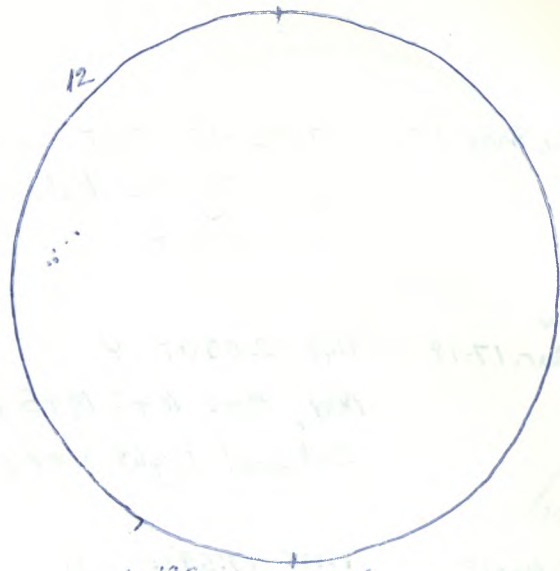
42 galaxies.

Coma Virgo galaxies: M98, NGC 4262, 4237, M99,
4298, 4302, ~~4298~~, ~~4302~~, 4312, 4379, 4293, M85, 4394,
M88, M91, 4474, 4459, one between the last two, 4477, one
other one near it, 4473, M100, ~~M100~~, M90, 4435,
4438, 4461, 4402, M86, M84, one near the latter two,
4425, 4413, 4438, M87, 4478, 4476, M89, 4550, M58,
M59, M60, 4647, 4638, 4660.

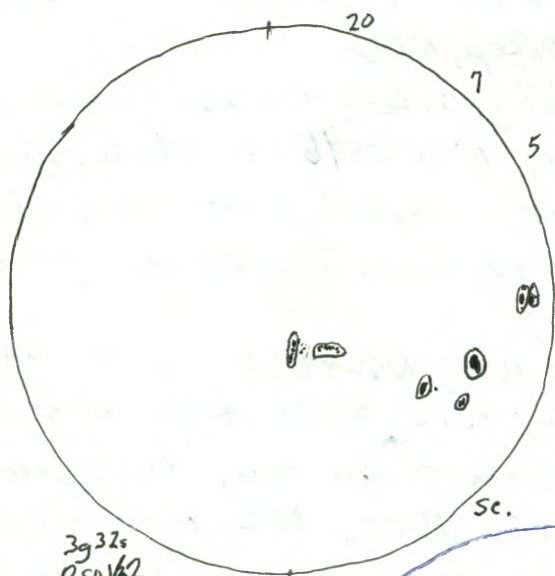
Su.-M Mar 22-23 1:30 - 4:10 UT 00 58(?) T-9 C-14, 32^m
M42, M43, Trapezium, σ Ori, M51, NGC 5198, M101, 5473, 5485,
5422, 5443, 5475, 5474, M109, 3953, 4485, 4490, 4618,
M94, M63, 4868, 4914, 4961, M3.



3g 15s
RSN 45
Mar. 23

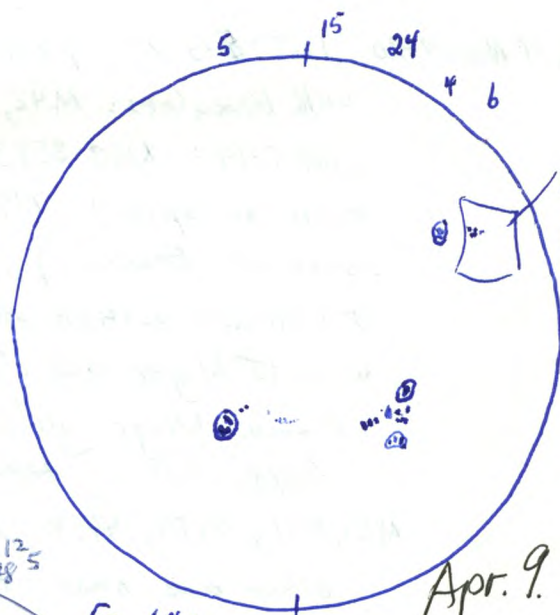


1g 12s
RSN 22
Mar. 24



3g 32s
RSN 62

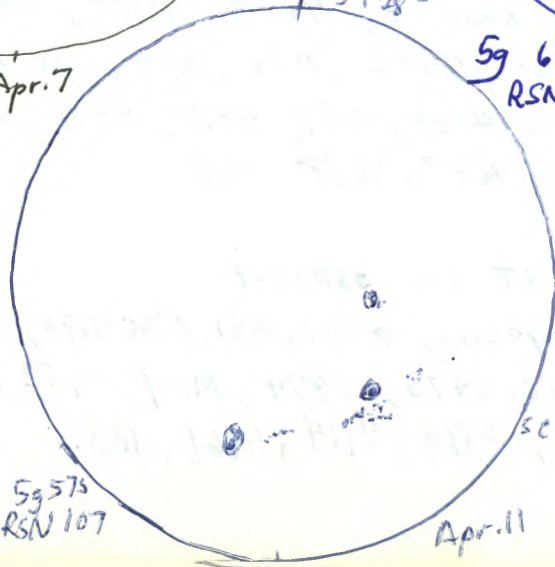
Apr. 7



area of
faculae

5g 64s
RSN

Apr. 9.



5g 57s
RSN 107

Apr. 11

1987 M. Mar 23 20:43-20:48 UT SS

C-8, 32^m, 28^m, 20^m, 15.5^m

Sun 3g 15s RSN 45

M. Mar. 23-24 1:40 - 5:40 UT 00 59(?) T9.5. 7x35b and C-14, 32^m

with binoculars: R Lep, RX Lep, M36, M37, M38.

ne: Zodiacal Light - bright in N.W.

C-14: M42, M43, Mars, M45, M35, Castor, Sirius, Ori, M44,
M41, M51, Mizar, NGC 3877 near K UMa, M106, 4348,
a galaxy near M106 - N.W. of it, M53, M64, 4712, 4725,
4747, 4565, 4494, 4469, 4483, M49, 4324, 4270,
4273, 4281, M61, M104, 5746, 5740, M96, M95,
M105, 3384, 3389.

- Zodiacal Light bright

Tu Mar. 24 20:56 - 21:04 UT SS

C-8, 32^m, 28^m, 20^m, 15.5^m

Sun 1g 12s RSN 22

granulation very evident

T.-W Mar. 24-25 2:00 - 4:10 UT γ and 00 57(?) T9

11x80b, C-14, 32^m

with 11x80b: M41, M42, M43, M44, M45, R Lep, RX Lep, M78,
M35, the Rosette cluster, M95 (or M96?), M51, and
companion, M101, η & χ Persei, M1, Z UMa, area of
T Pyxidis, M40, and later M68.

with C-14: M109, M108, M97, M101, NGC 5473 NW of
M101, M81, M82, M101, M68, M83.

Zodiacal Light was bright.

Tu. Apr. 7 21:00 - 21:05 UT SS

C-8, 32^m, 28^m, 20^m, 15.5^m

Sun. 3g 32s RSN 62

Th Apr. 9 20:30 - 20:38 UT SS

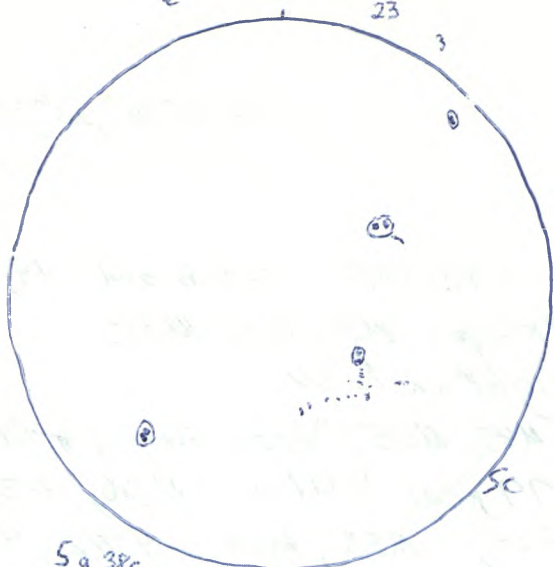
C-8, 32^m, 28^m, 20^m, 15.5^m

Sun 5g 64s RSN 114

Sa Apr. 11 16:15 - 16:20 UT SS

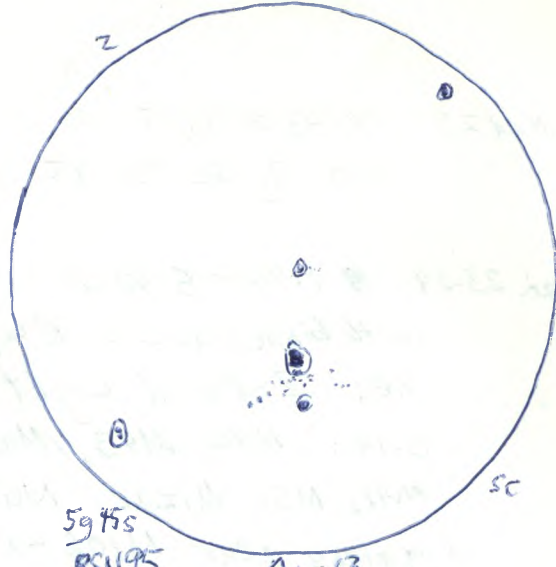
C-8, 32^m, 28^m, 20^m, 15.5^m

Sun 5g 57s RSN 107



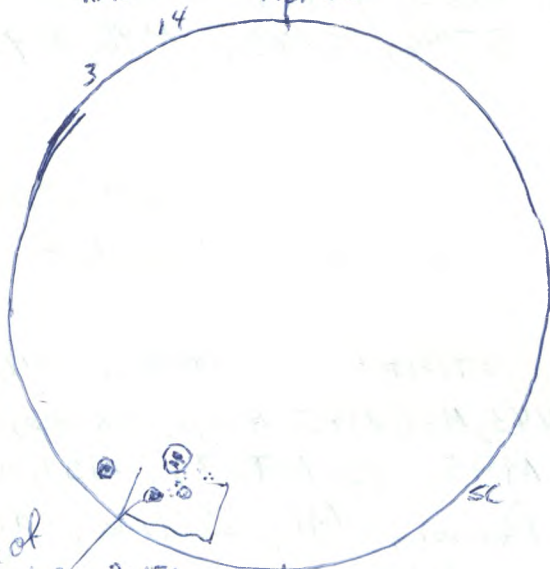
59385
RSN

Apr. 12.



59455
RSN95

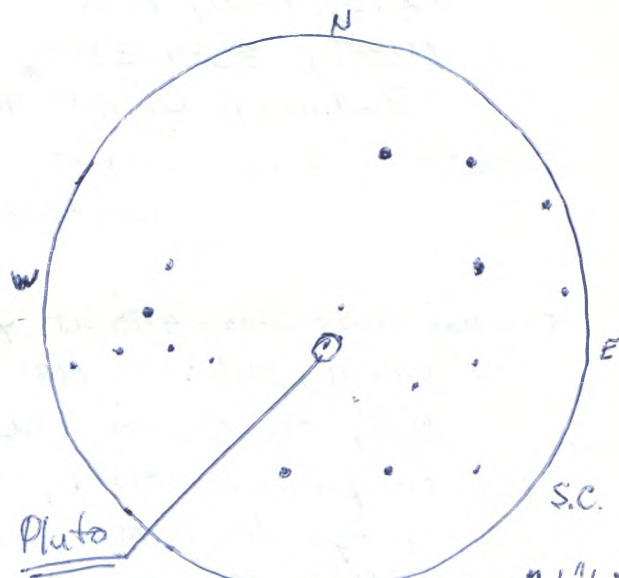
Apr. 13



area of
faculae

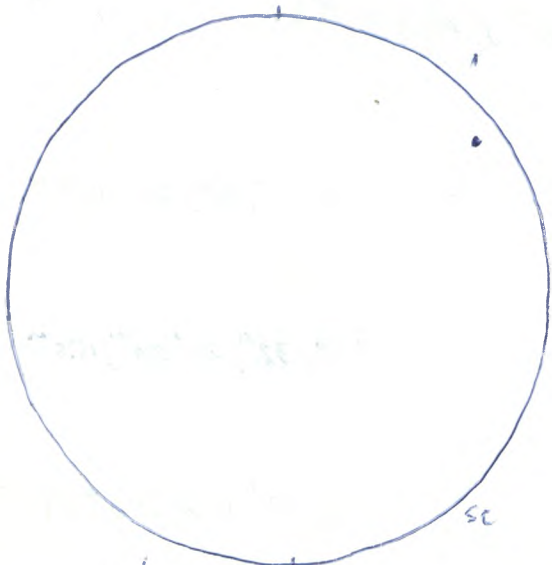
29175
RSN37

Apr. 17



Pluto

Field of Pluto δ C-14, 32" by King and
2:48 UT Apr. 21, 1987 2" Effle
about 1 Field Sand 1 Field E. of
the star 109 Virginis.



1915
RSN11

Apr. 27.

1987 Apr. 12 17:00-17:10 UT ss haze
Sun 5g 38s RSN 88

C-8, 32", 28", 20" 15.5"

M. Apr. 13 21:10-21:20 UT ss
sun 5g 45s RSN 95

C-8, 32", 28", 20" 15.5"

M-T. Apr. 13-14 01:10-03:10 UT y and ss

11x806 and C-8, 20"

Moon during penumbral eclipse of magnitude .80.
Some slight darkening was detectable by the naked eye in the moon's northern hemisphere and the darkening extended further south on the "left" hemisphere than on the "right" hemisphere (as the moon was viewed on the celestial sphere).
Photographs were taken before, at about the time of, and after mid-eclipse which occurred at about 2:19 UT.

F Apr. 17 17:10-17:20 UT
sun 2g 17s RSN 37

C-8, 32", 28", 20" 15.5"

faculae near one group.

Sa-Su Apr. 18-19 2:00-3:00 UT (approx) 9th Cen. Tyndinger 59T9.5 7X356
M35, M36, M37, M38, Double Cluster in Perseus, M44, M67, M51
observed with Denise and with David Enright

M. Apr. 20 17:54-17:58 UT ss
sun Og Os RSNO

C-8, 32", 28", 20" 15.5"

granulation very apparent.

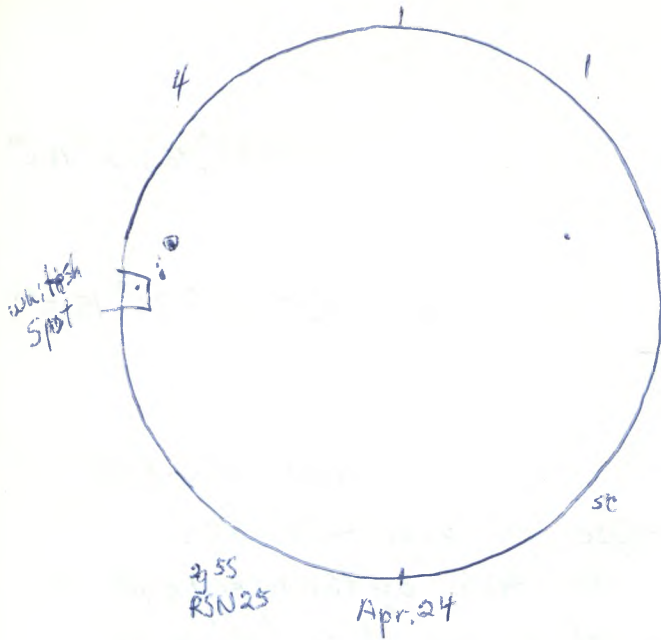
M-T. Apr. 20-21 2:00-4:00 UT oo 59T9

C-14, 32" 1 1/4", 32" 2"

γ Leonis, M13, Pluto near 109 U Virginis, NGC 5740 and NGC 5746 near 109 U Virginis also, M98, M4237 M51, Castor.

W. Apr. 22 21:00-21:05 UT ss hazy
sun 1g 1s RSN 11

C-8, 32", 28", 20" 15.5"



Apr. 25 10:00UT

1987 F. Apr. 24 21:30-21:38 UT ss slightly hazy

C-8, 32^m, 28^m, 20^m, 15.5^m

sun 2g 5s RSN 25 granulation seen. faculae near group of spots on left (sc) (receding) limb. whitish spot near group of spots on left (sc) limb

Sa Apr. 25 10:00 - 10:40 UT

11x80b, camera lens, and ne

observed and photographed Moon and Venus in eastern sky before the occultation of Venus by the Moon.

- first seen about 9:55 UT (before sunrise at about 10:08 UT - [6:08 E.D.T.]) and observed and photographed periodically until the occultation at about 10:38:40 UT [6:38:40 E.D.T.]

The moon could be seen for a while naked eye but it became increasingly difficult to do so after sunrise.

The moon was a thin crescent about 3½ days before New Moon.

Th. Apr. 30 22:20:22-25 ss

C-8, 32^m, 28^m, 20^m, 15.5^m

sun 2g 4s RSN 24 white spot near one spot.

T.F. Apr. 30-May 1 3:30 - 5:30 UT 00

C-14, 32^m

24

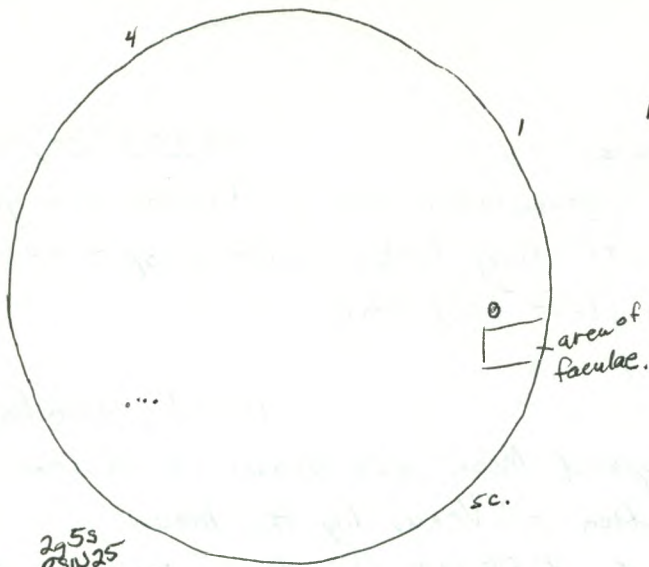
γ Leonis, and 2 galaxies near it (NGC 3326, 3327), Pluto, NGC 5806, 5813 both E. of 109 Vir, 5838, 5854, 5864 further E., 5846, 5850, 5838, M5, M88, NGC 4262, 4237, 4262, M99, M81, M82, NGC 3877, M13, M57, Saturn

F.S. May 1-2 4:30 - 8:00 UT 00 some cloud

C-14, 32^m E

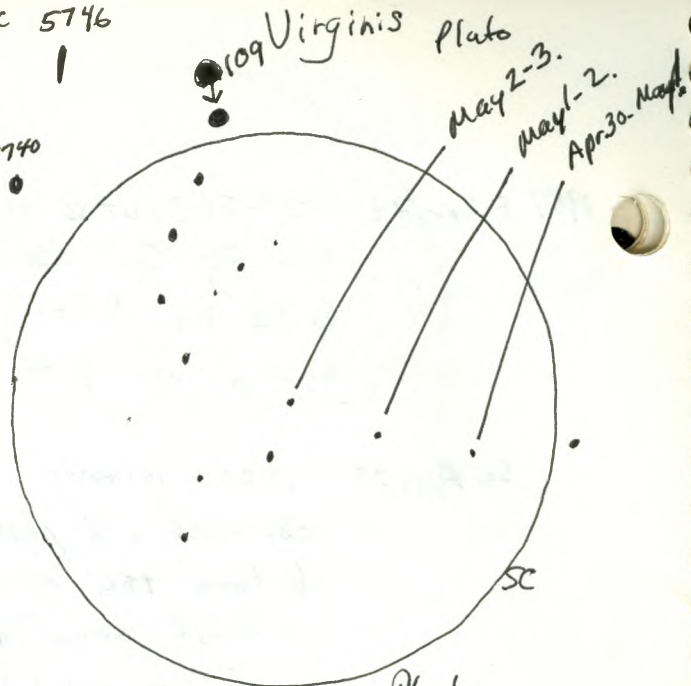
γ Leonis NGC 3326, 3327, 3877 (near KUMa), M88, NGC 4262, NGC 4237, M99, NGC 4298, 4302, 4312, M100, NGC 4379, 4293, 4394, M85, NGC 5746, 5740 (Near 109 Vir), Pluto, M88, M91, NGC 4474, 4459, 4477, 4473, 4461, M90, NGC 4435, 4438, 4402, M86, M84, unnamed galaxy near them, 4388, 4425, 4413, M87, NGC 4478, 4476, another near ~~4461~~, M89, 4550, another near 4550, M58, M59, M60, NGC 4647, 4638, 4660, 4694. M22, M4, Saturn.

53

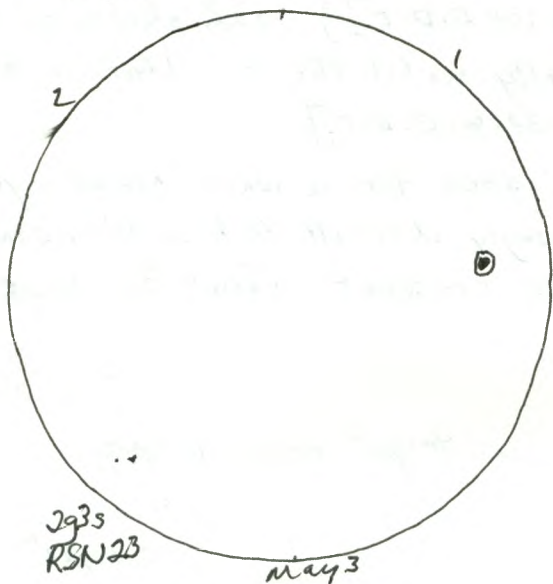


2955
RSN25
May 2

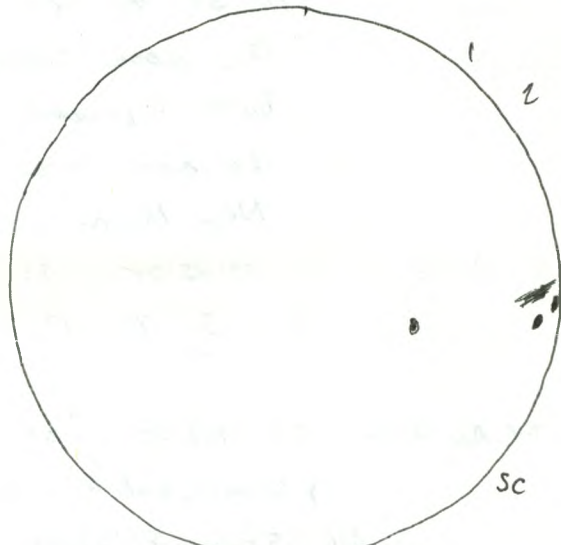
NGC 5746
1
NGC 5740



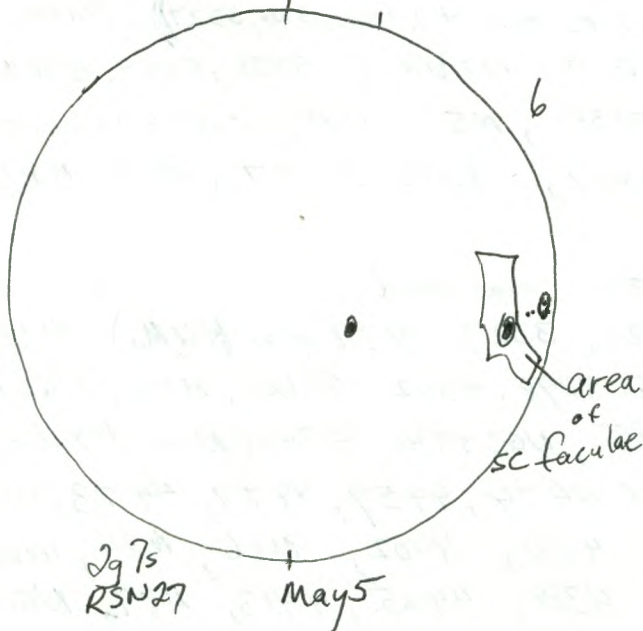
Field of Pluto
C-14, 32" Erfle eyepiece.



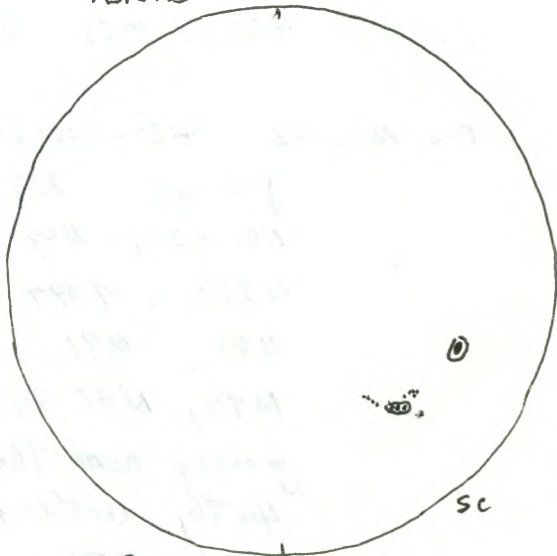
2935
RSN23
May 3



2935
RSN23
May 4



2975
RSN27
May 5



29135
RSN43
May 8

1987 Sa May 2 15:08-15:20 UT SS C-8, 32", 28", 20", 15.5"
sun 2g 5s RSN 25

29 Sa-Su May 2-3 5:30-8:00 UT 00 C-14, 32" E and K
NGC 3593, M65, M66, NGC 3628, 3596, M105, 3384,
3389, M96, M95, 5746, 5740, M108, M97, M109,
M40, M8, M20, M63, M94, 4485, 4490, 4618,
M106, M53, M5, M71, M57, Pluto.

Su May 3 16:00-16:08 UT SS C-8, 32", 28", 20", 15.5"
sun 2g 3s RSN 23

M. May 4 19:50-19:55 UT SS C-8, 32", 28", 20", 15.5"
sun 2g 3s RSN 23

Tu May 5 20:28-20:34 UT SS C-8, 32", 28", 20", 15.5"
sun 2g 7s ^{RSN 27} large area of faculae near spots near rim.

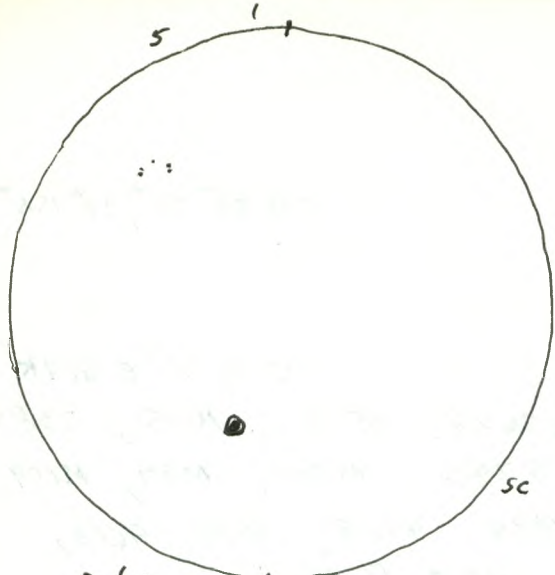
F May 8 20:15-20:20 UT SS C-8, 32", 28", 20", 15.5"
sun. 2g 13s. RSN 43.

Sa-Su May 9-10 1:00-3:00 UT ^{Kingston} macdonald Park cloudy at times 8" 11K806 and Astroscan, 19"
Mars, lunar craters, Mizar, M44, M13.

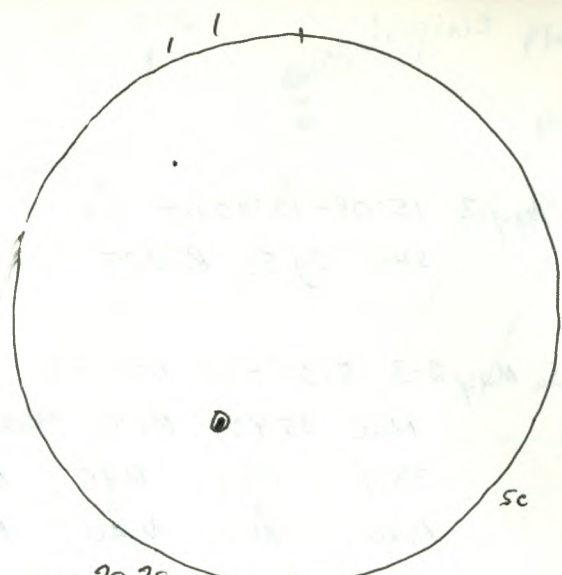
Tu. May 12, 21:05-21:10 UT SS C-8, 32", 28", 20", 15.5"
sun 2g 6s RSN 26

w. May 13 21:05-21:10 UT SS C-8, 32", 28", 20", 15.5"
sun. 2g 2s RSN 22.

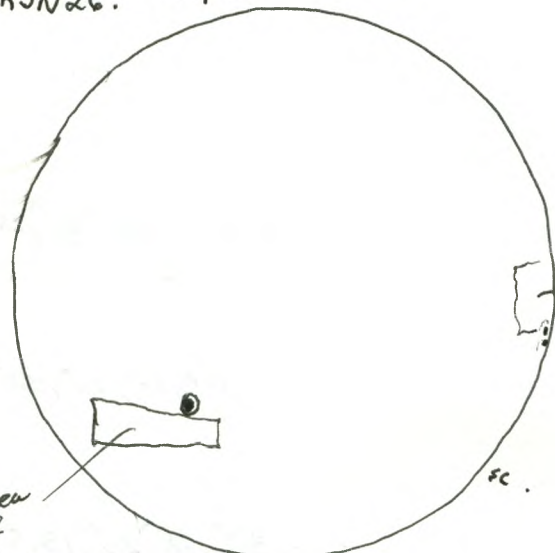
Th. May 14 20:30-20:35 SS C-8, 32", 28", 20", 15.5"
sun 2g 3s RSN 23. two areas of faculae.



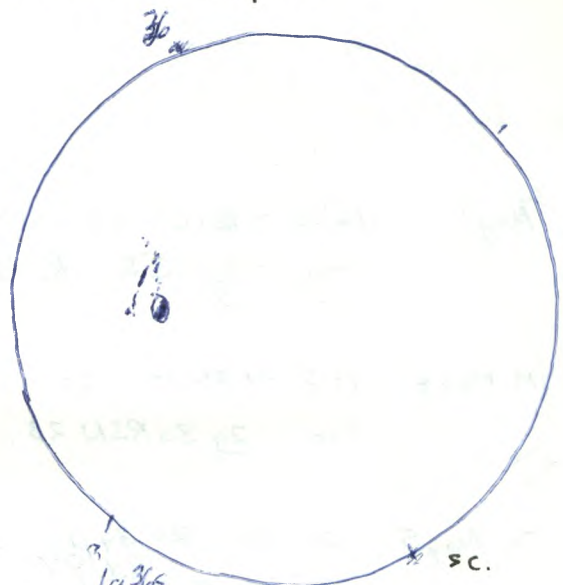
2965
RSN26. May 12



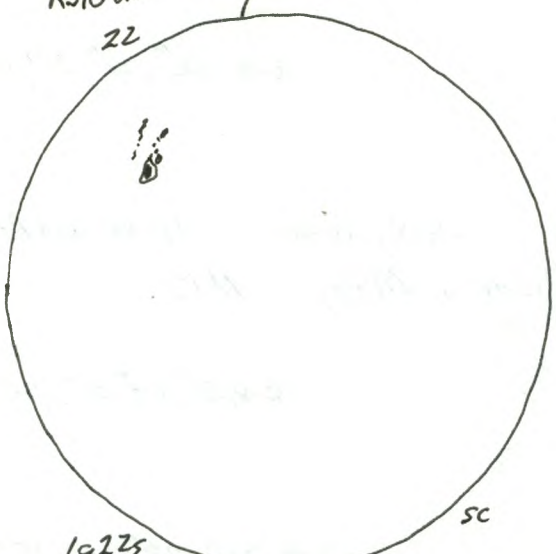
2925
RSN22 May 13



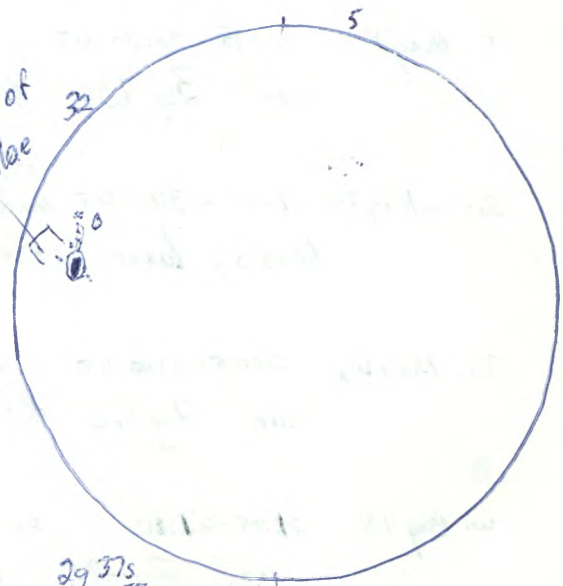
area of
faculae.
2935
RSN23 May 14.
22



19365
RSN46 May 21



19225
RSN32 May 22.



29375
RSN51 May 25

1987 ^{M.-Tu.} May 18-19 3:15-5:00 UT ss 57 T9 C-8, 32^E / Astro, 21^A / R₀, 32, 19

NGC 3577, M42, M14, M13, NGC 5740, 5746, M4, Saturn, M57, M51, 6207, M98, M100,

Special guest: David H. Levy, who did 1/2 hr comet hunting
your friend - unusual, an inspiring session
with Leo.

Th May 21 22:20-22:25 UT ss stable C-8, 32^m, 28^m, 20^m, 15.5^m
sun 1g 36s RSN 46 1 large spot and many very small ones

F. May 22 22:15-22:20 UT ss clouds encroaching C-8, 32^m, 28^m, 20^m
sun. 1g 22s RSN 32

M May 25 21:45-21:55 UT ss C-8, 32^m, 28^m, 15.5^m
sun 2g 37s RSN 57 granulation very evident.

Castor
Pollux

T.F. May 28-29 01:30-01:55 UT y 7x35b
← crescent moon about 34 hours old (about 34^h 22^m) when first seen, Mercury, and Mars (1)
(moon to pass north of Mars during the coming day.)

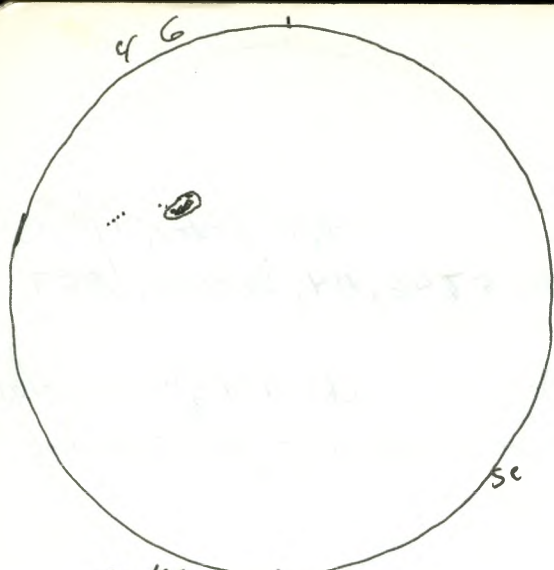
Mars
Mercury

? N.W. 02:30-03:00 y 80^{mm} Lunicor refractor
experimenting with new instrument
- observed arc Aurora in N.

F. May 29 21:30-21:40 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m
sun 2g 10s RSN 30. granulation seen.

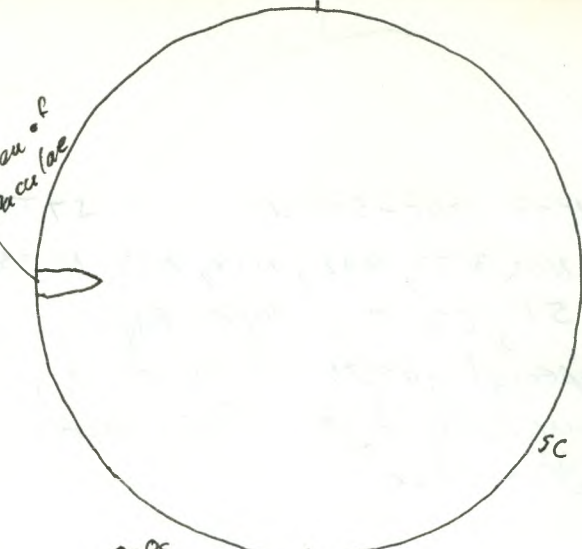
S.-M. May 31-June 1 01:35-01:40 UT y 7x35b
Mercury and Mars in N.W. below the crescent moon. (2)
Mercury was also easily seen naked eye.

Tu. June 2 21:50-21:55 UT ss. C-8, 32^m, 28^m, 20^m, 15.5^m
sun 0g 0s RSN 0 area of faculae seen near limb



29 105
RSNO May 29

area of
faculae



0905
RSNO June 2

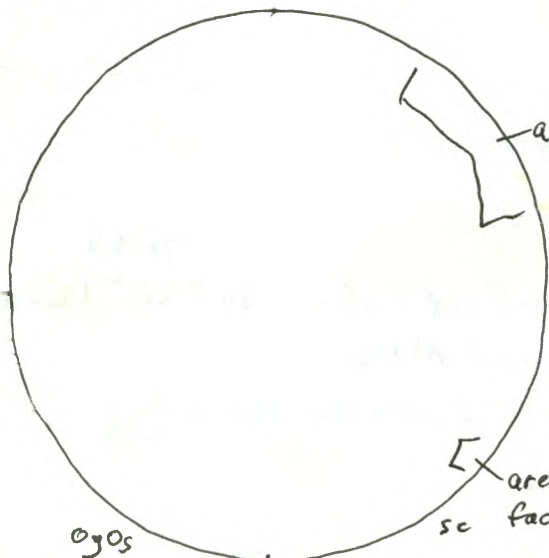
Mars

Mercury

NW

0^h TDT June 11
Mercury : 6 56 44.065
Mars : 6 59 13.904

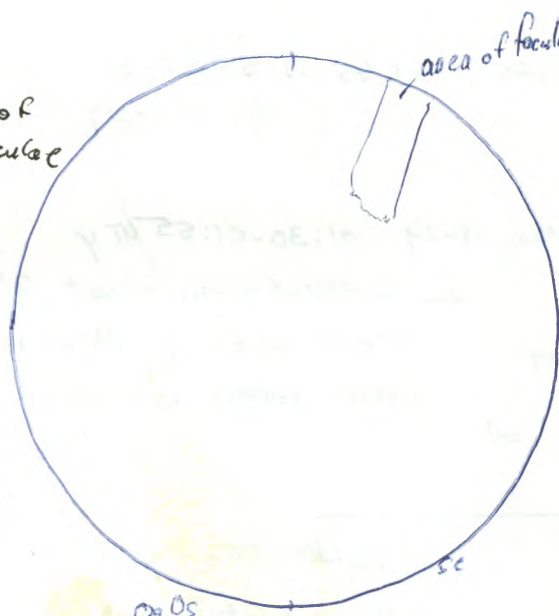
δ
+23° 39' 34.64
+23 52 21.83



0905
RSNO June 12

area of
faculae

area of
sc
faculae



0905
RSNO June 15

area of faculae

Mars
Mercury

NW

1987 W.-Th June 3-4 01:48-01:52 UT y twilight 7x35b, ne
← Mars and Mercury in NW. Mercury seen ne (3)

Th.-F. June 4-5 01:50-01:58 UT y twilight 7x35b, ne (4)
Mars and Mercury in NW. Mercury - ne

Sa June 6 19:35-19:40 UT C-8, 32^m, 28^m, 20^m, 15.5^m
sun O_g O_s RSNO granulation and faculae at 40'clock SE view

Sa-Su June 6-7 1:30-1:50 UT twilight 7x35b, ne
Mars and Mercury, Mercury seen ne (5)

W. June 10 20:18-20:20 UT C-8, 32^m, 28^m, 20^m, 15.5^m
sun O_g O_s RSNO granulation seen.

W.-T. June 10-11 1:55-2:00 UT y 11x80b
← Mars and Mercury quite close together (6)

F. Jun. 12 19:41-19:45 UT
sun O_g O_s RSNO granulation visible areas of faculae

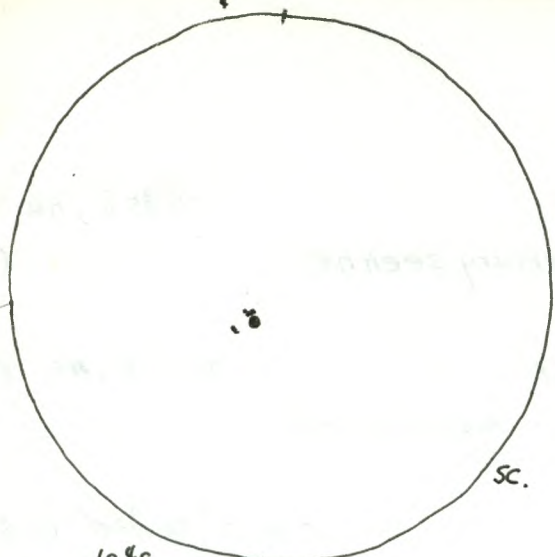
S.-S. June 13-14 03:00-04:00 UT 00 some cloud C-14, 35^m E
M107, M80, M4, M51, Saturn, M57

Sa June 14 16:20-16:30 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun O_g O_s RSNO granulation evident

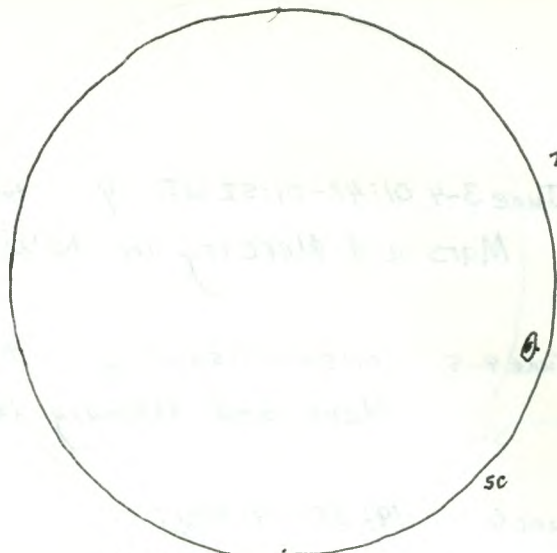
M. June 15 20:00-20:05 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun O_g O_s RSNO granulation evident, area of faculae.

M.-T. June 15-16 04:15-04:45 UT y SS? T7.5 some cloud 11x80b
Uranus W of M8 and M20, Neptune NNE of M22.

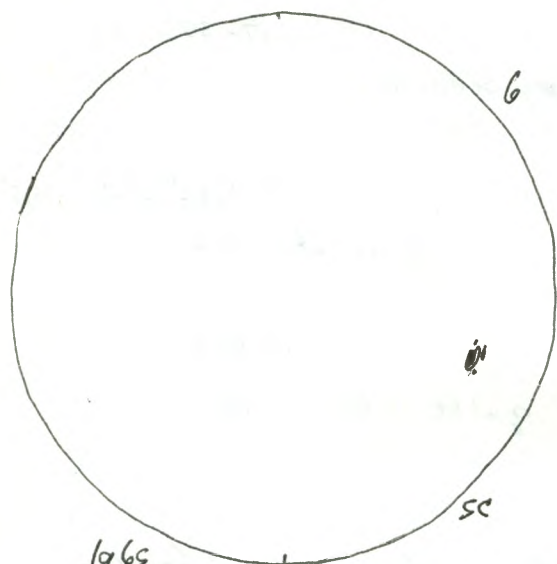
Tu June 16 20:52-20:56 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun O_g O_s RSNO granulation evident.



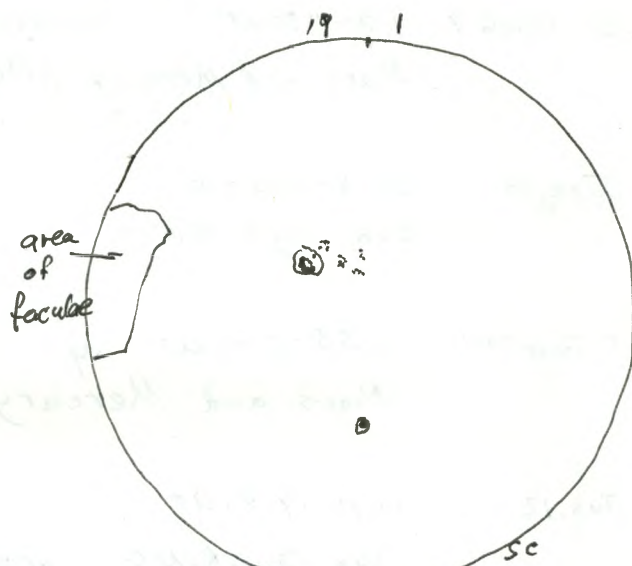
1945
RSN 14 June 17.



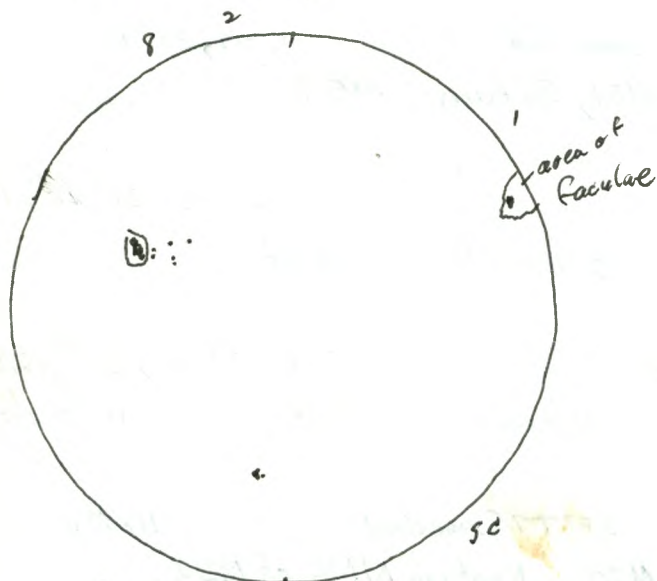
1928
RSN 12 June 18



1965
RSN 16 June 19



29705
RSN 40 June 23.



39115
RSN 41 June 25

1987 W. June 17 19:40-19:45 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
Sun 1g 4s RSN14 granulation evident.

W.-Th. June 17-18 03:20-5:30 UT y and 00 S9 T9.5 11x806 and C-14, 32^m, 9^m, 55^m
11x806 - Uranus, Neptune.
C-14 - Saturn, Uranus, M57, M51, M4, NGC 517 GC OPH,
NGC 6539 GC OPH, NGC 6522 and NGC 6528 (Twin GC), M16,
M17, M18, M24, M21, Albireo

Th.-F June 18-19 04:30-05:30 UT y S8(?) T9.5(!) 7x35b.
Uranus, Neptune, M8, M20, M13, M4, M16, M17, M25, M22, M28,
Coll 399, M11

Th. June 18 22:00-22:05 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
Sun 1g 2s RSN12

F. June 19 20:15-20:20 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
Sun 1g 6s RSN16

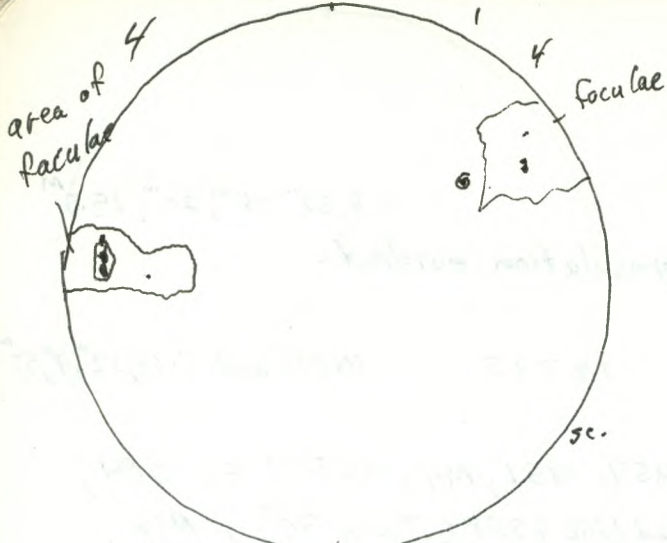
Tu. June 23 21:02-21:08 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
Sun 2g 20s RSN40 granulation evident.

T.-W. June 23-24 05:30-05:45 y S8.5(?) T9.5(!) 7x35b and ne
Saturn, Coll 399, M22, Uranus, M8, M20.

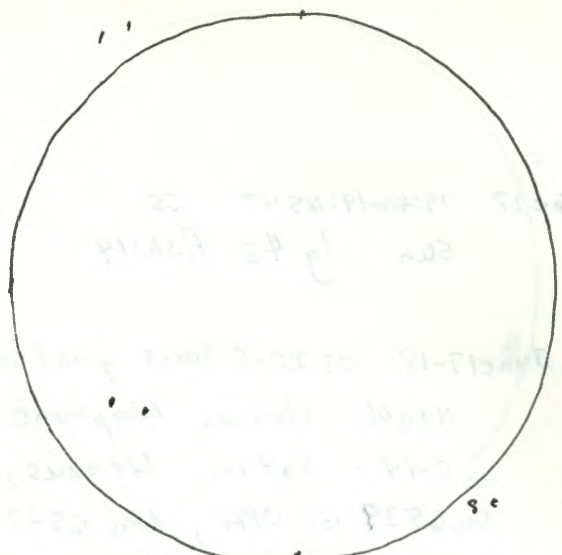
W.-T. June 24-25 03:45-5:10 UT y S8.5(?) T8 11x806.
Uranus, Saturn, M22, M28, M11, M16, M17, M18, M24, M8, M20,
M27, M71, SS Cyg.

Th. June 25 21:14-21:24 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
Sun 3g 11s RSN41

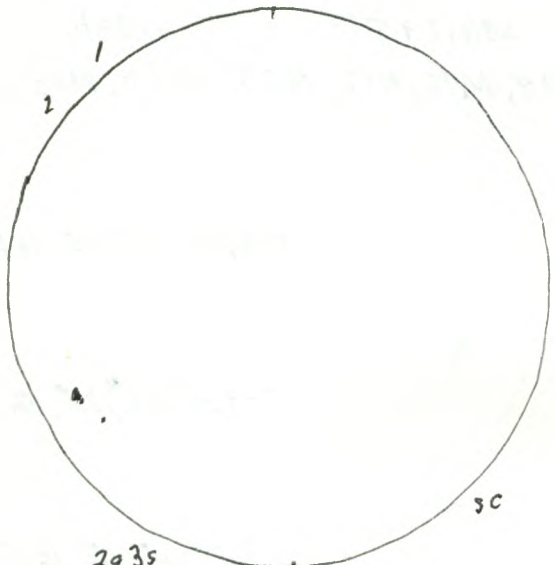
Th.-F June 25-26 02:17-03:20 UT 00 S9(?) T3 cloudy C-14, 32^m
Saturn, Alcor, and Mizar



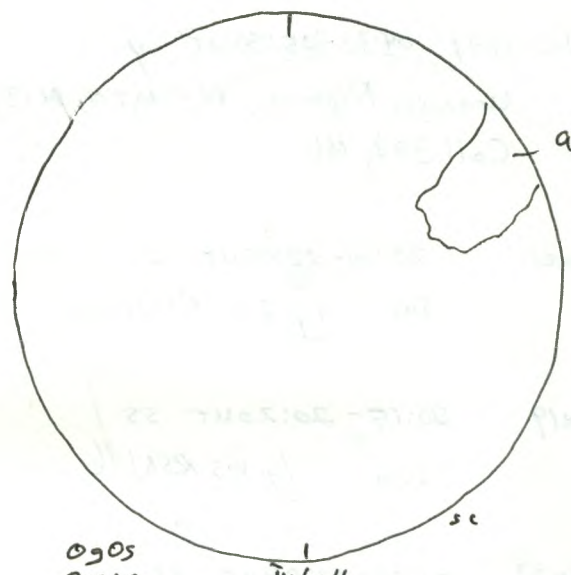
39 9s
RSN39.
June 28



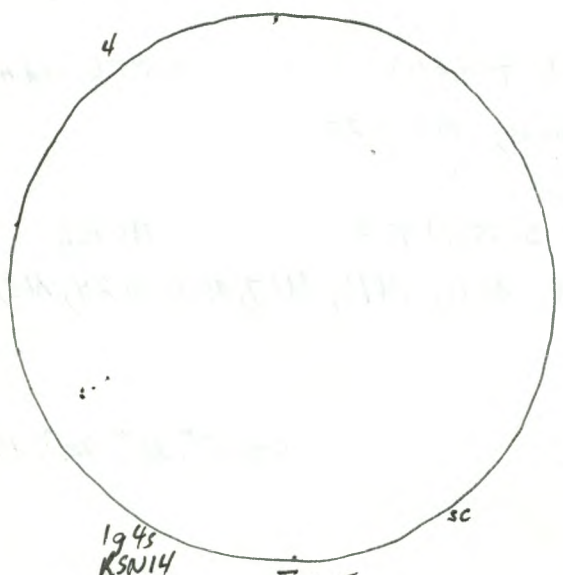
29 25
RSN22 July 8



29 35
RSN23
July 9



09 05
RSN0
July 11



19 45
RSN14
July 15

2:00UT
S.M. - 10+
Saw Saturn
with Astrocam x15mm
at S.S. in yard

1987 F.S June 26-27 04:39-05:22 UT 00 58.5 (P) T.S.S becoming cloudy 11x80b and C-14, 35^m
SS Cyg, W Cyg M39, NGC 7082 near M39, M16, M19, M18,
M24 (star cloud in Milky Way) M25, M28, M8, NGC 6522 and
NGC 6528, M69, M70.

Th June 28 18:00-18:30 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
Sun 3g 9s RSN 39 faculae seen.

S-M June 28-29 04:10 - 07:00 UT 00 S9T9.5 (!) C-14, 32^mE.
Saturn, M51, Uranus, α Her., ϵ Boo, M54, NGC 6652 GC near M69,
M55, NGC 6802 OC near α Col 399, M71, M27, M57, NGC 7009
(Saturn Nebula, M72, M73, α Her., NGC 6027 in Serpens Caput,
NGC 6052 (very faint grouping, difficult to distinguish or to tell how
many there are - Seyfert's Sextet of galaxies)

Tu June 30 19:00-19:05 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 0g 0s RSN 0 granulation seen.

W. July 8 21:45-21:53 UT SS hazy C-8, 32^m, 28^m, 20^m, 15.5^m
sun 2g 2s RSN 22

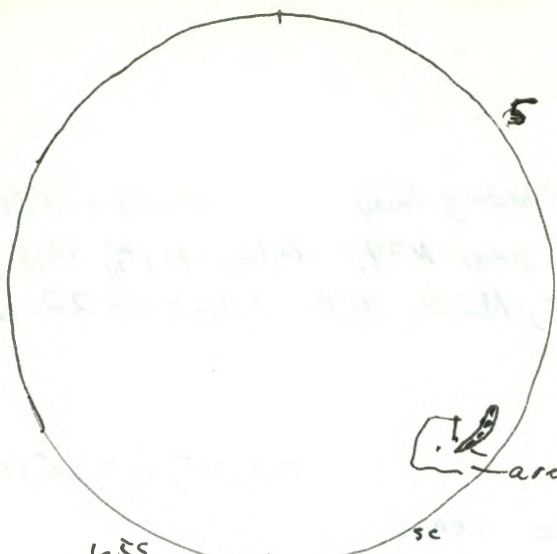
Th. July 9 21:55-22:02 UT SS hazy C-8, 32^m, 28^m, 20^m, 15.5^m
sun 2g 3s RSN 23

Sa July 11 15:00-15:10 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
Sun 0g 0s RSN 0 faculae seen

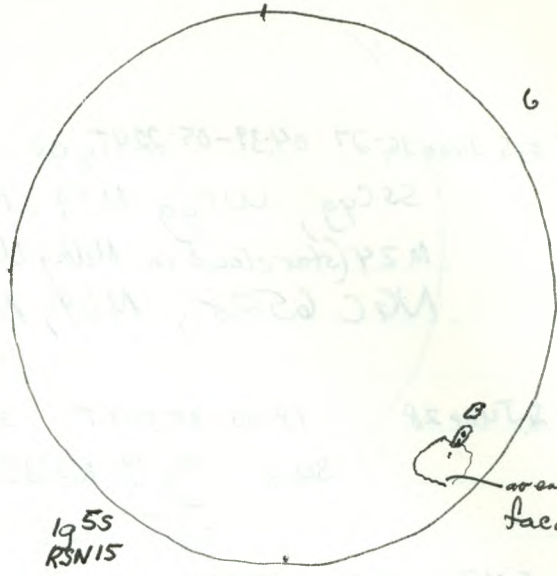
Su July 12 15:40-15:48 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
Sun 0g 0s RSN 0 faculae in area of previous day

M. July 13 14:00-14:10 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 0g 0s RSN 0 granulation seen; faculae in area of previous day

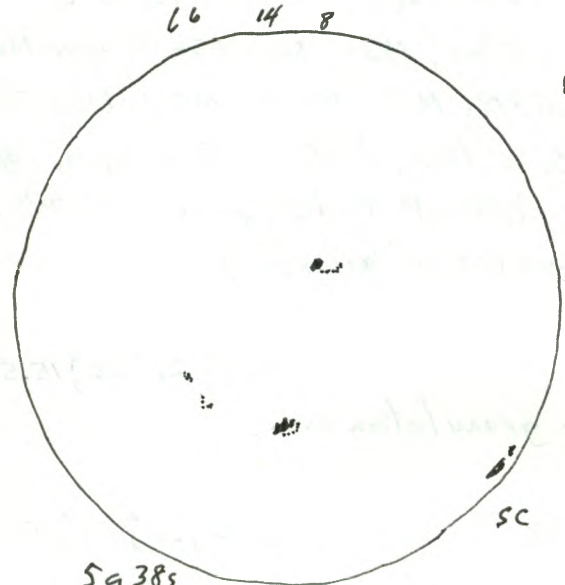
W. July 15 23:10-23:18 UT n. deck C-8, 32^m, 28^m, 20^m, 15.5^m
sun 1g 4s RSN 14 granulation seen; spots small



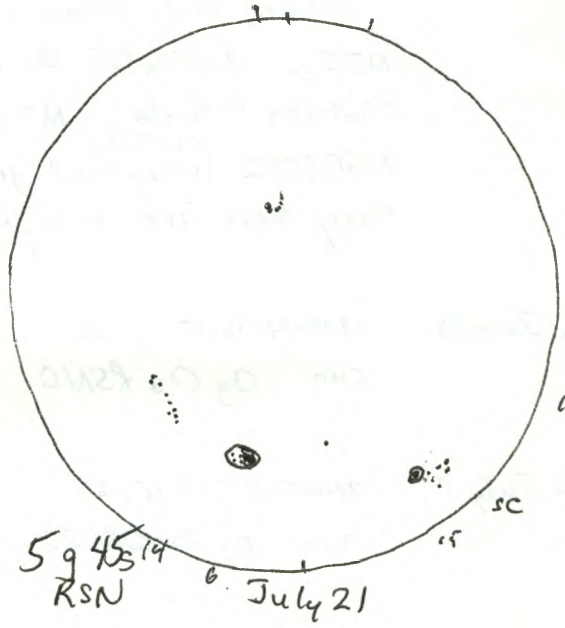
1955
RSN15 July 16



1955
RSN15 July 17

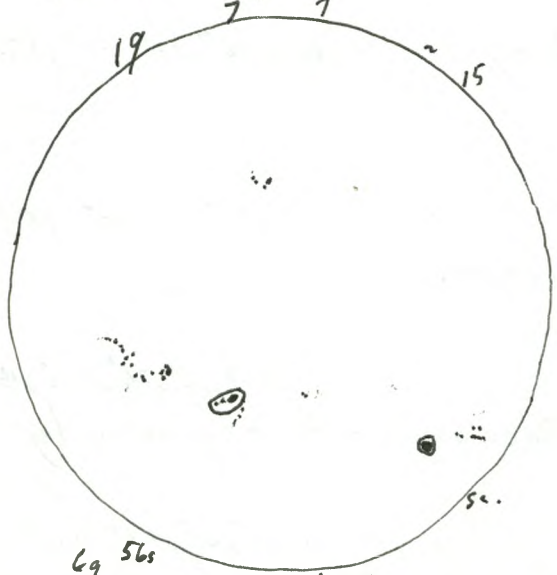


59385
RSN58 July 20



594514
RSN July 21

7
14
6
15
45



69565
RSN 116 July 22

July 22 6:05 AM
O...
sc view of
Jupiter

1987 W.T. July 15-16 2:30-4:00 UT 00 s.8T8 - became cloudy C-14, 32^mE
M51, M57, M13, M92, Saturn, ϵ Her, β Cyg, α Her, NGC 6522 and
NGC 6528, Uranus, M22, both parts of Veil Nebula

Th. July 16 16:10-16:20 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun lg 5s RSN 15 faculae seen.

T.-F. July 16-17 03:10-04:30 UT γ s.8T9.5(!) 7x35b, 11x80b
M22, Saturn, M4, area of β Cyg, area of Barnard's Star
which was possibly seen with averted vision, M11, M13,
Alcor, Mizar, Uranus

F. July 17 16:45-16:50 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun lg 6s RSN 16

M. July 20 21:20-21:30 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 5g 38s RSN 88

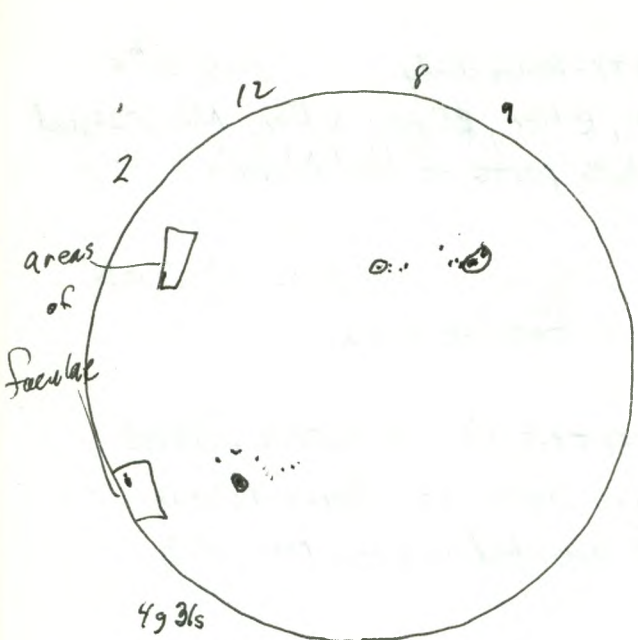
Tu July 21 20:40-20:55 UT SS. C-8, 32^m, 28^m, 20^m, 15.5^m
sun 5g 45s RSN 95

T.-w. July 21-22 04:00-06:15 UT γ and SS s.8.5(?)T9 7x35b and C-8, 36 Pl^{oid}
with 7x35b: Saturn, M22, M13
with C-8; Coll 399 and associated cluster, area of Barnard's Star,
M13, Jupiter, α Her, γ Del., Veil Nebula, NGC 7331, M27, M57
M31, M32, M110, M11, Double Cluster h and χ Persei.

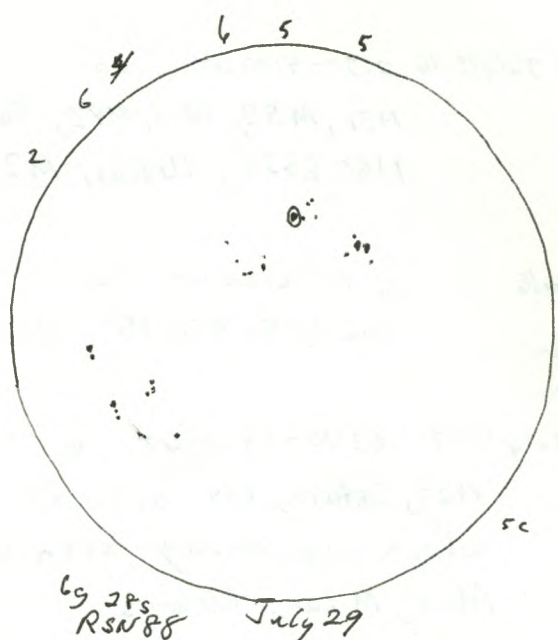
July 22 21:45-21:55 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun lg 56s RSN 116

July 22-23 - 03:45-05:50 UT γ s.9T9 11x80b
Jupiter M13, M51, M27, Coll 399, M31, M33, Double Cluster in Perseus,
M22, M88, M11, area of Barnard's star

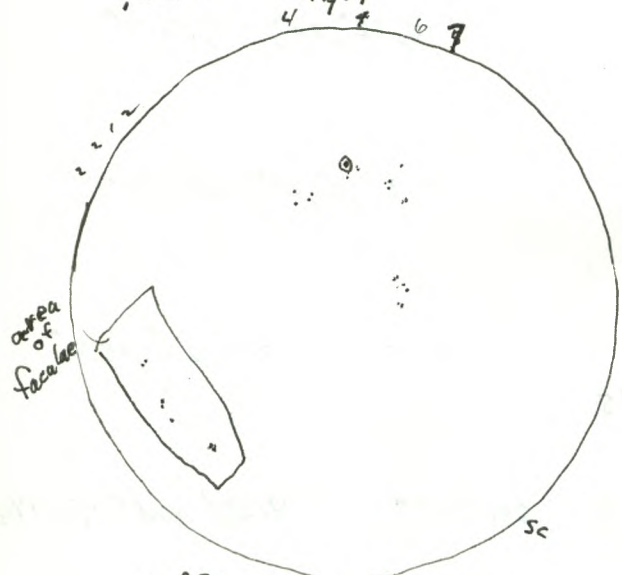
July 25-26 04:00-0:6:00 periodically Stella bene 59(C)T. P.5 11x80b.
M51, M92, M13 in Vermont



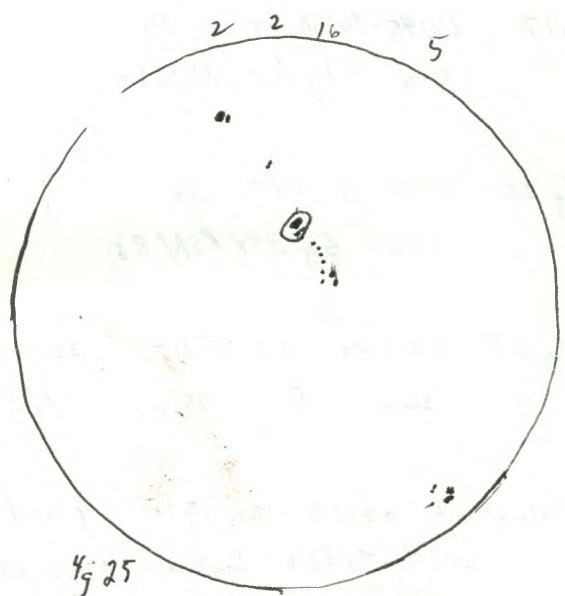
4936s
RSN 71
July 27



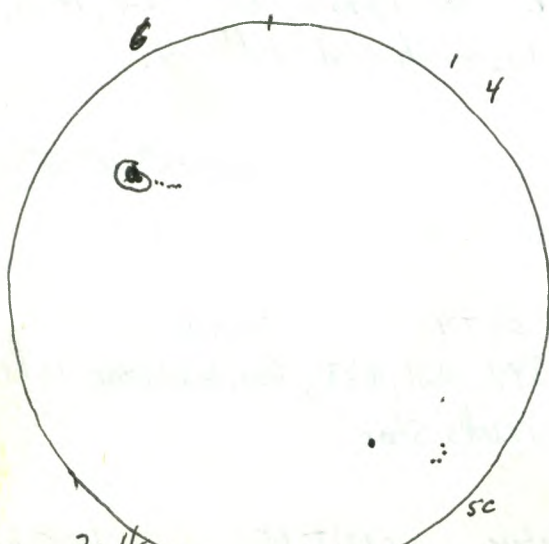
6938s
RSN 88
July 29



8928s
RSN 108
July 30



4925
RSN 65
Aug. 1



3911s
RSN 41
Aug 3

1987 July 26-27

02:00-02:10 UT N. Syracuse

SB(R) T 7(E)

11X806.

M13, M51 with difficulty, Alcor and Mizar.

July 27

21:30-21:40 UT SS.

C-8, 32^m, 28^m, 20^m, 15.5^m

sun 4g 8/5 RSN 71

faculae seen in two areas.

July 27-28

04:00-07:00 UT 00 S9 T9.5(!)

C-14, 32^m K

Saturn, Jupiter, NGC 7331, Stephan's Quintet, M13, Col 399,
one bright fireball trail seen about 7:00 UT.

July 28-29

02:30-05:00 00 S9 T8.5

C-14, 32^m E.

~~sun 6g 28s RSN 88~~ - Saturn M13, M57, M27, Veil, Cluster near
Col 399, NGC 7331, Stephan's Quintet.

- Very interesting Aurora with bright arc and moving spikes,
some green colour, increasing in activity during the middle part of
the observing session

July 29

21:40-21:45 SS

C-8, 32^m, 28^m, 20^m, 15.5^m

sun 6g 28s RSN 88

July 30

21:00-21:10 UT SS

C-8, 32^m, 28^m, 20^m, 15.5^m

sun 8g 28s RSN 108

faculae near l. limb (sc.)

T.F.

July 30-31

3:10-5:00 UT Y

7X356.

M13, M31, M15, Col 399, area of North America Nebula.

Aurora: brightness in N and arc with some spikes

July 31- Aug. 1

3:30-5:00 UT SP

Astræan and C-8, 32^m

M13, M31, M32, M110, M18, M17, M24, Saturn, M33, M57

Aurora: arc with spikes including one wide band in NW.

Aug. 1

22:15-22:20

C-8, 32^m, 28^m, 20^m, 15.5^m

sun 4g 25s RSN 65

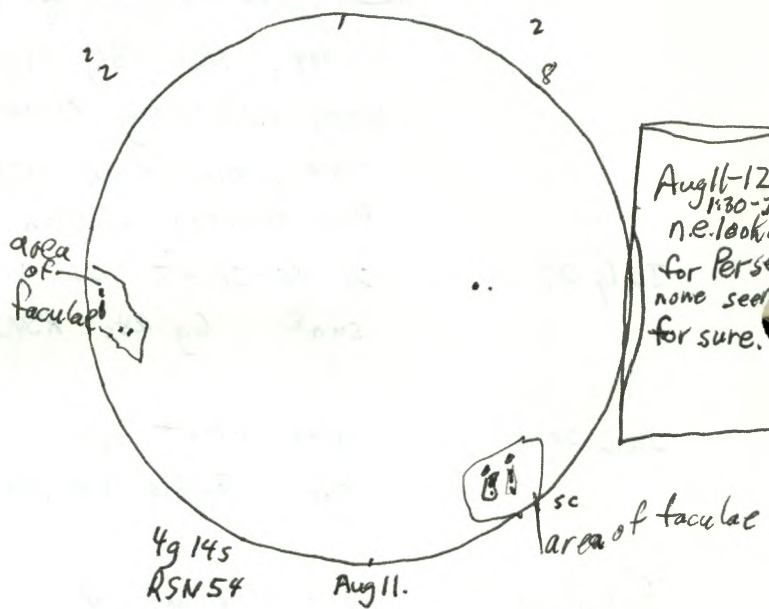
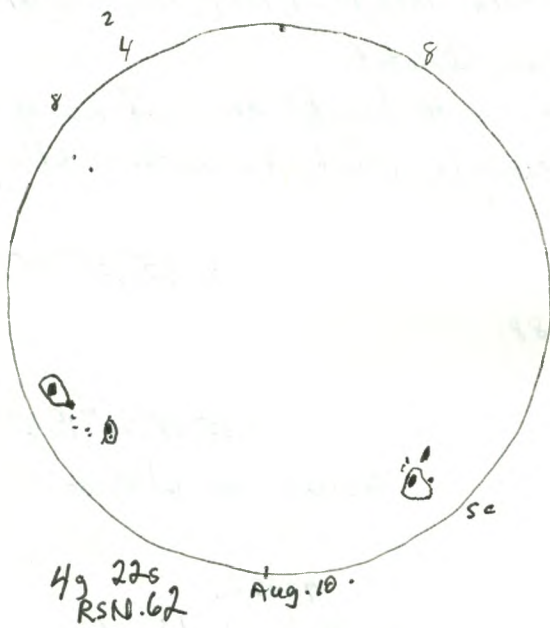
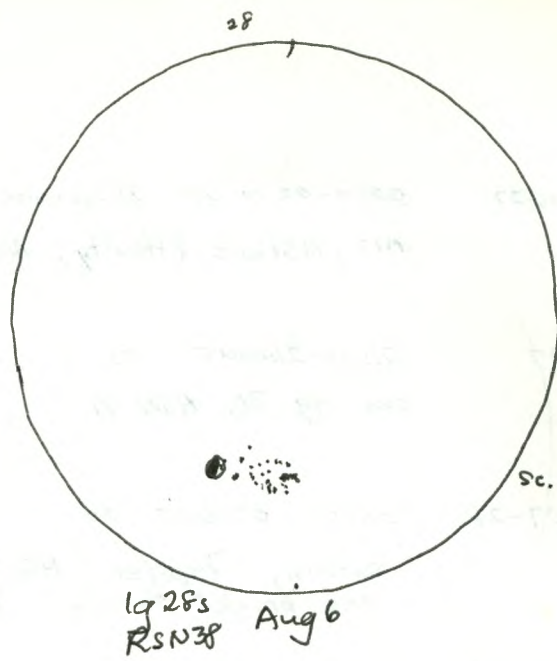
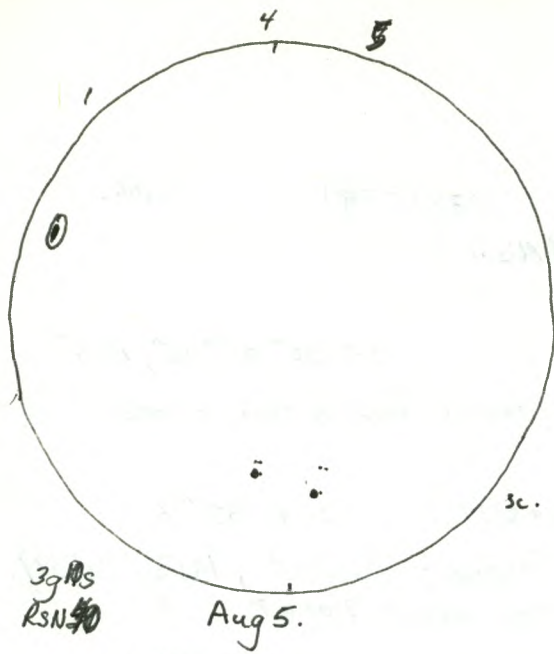
faculae seen

Aug 3

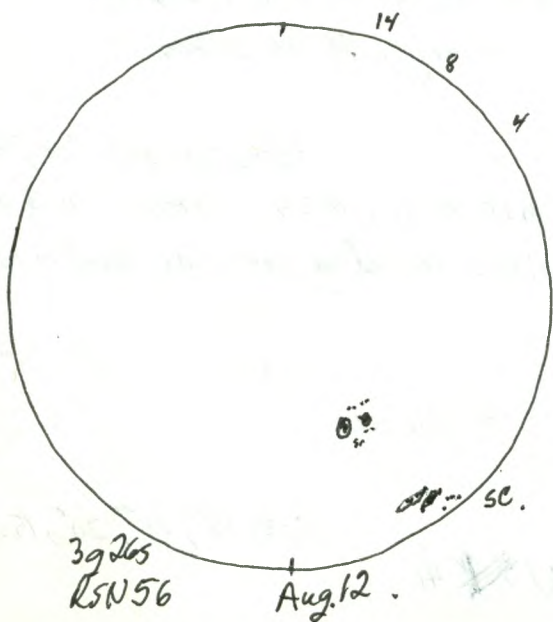
19:20-19:30 UT SS.

C-8, 32^m, 28^m, 20^m, 15.5^m

sun 3g 14s RSN ~~71~~ 41



Aug 12
11:30-1:30 AM
n.e. looking
for Perseids -
none seen
for sure.



1987 M.-T. Aug. 3-4 4:30-7:00 UT 00 SRT 9.5 C-14, 32^mK
- photographed using TP 2415 film area of N. America Nebula,
M31, M33
- observed M27, M31, Jupiter; several bright meteors seen.

W. Aug 5 21:20-21:30 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 3g 10s RSN 40 granulation seen

Th. Aug. 6 21:40-21:45 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 1g 28s RSN 38 granulation evident.

M. Aug. 10 20:45-20:55 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 1g 22s RSN 62 granulation and faculae seen.

Tu. Aug. 11 20:25-20:40 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 4g 14s RSN 54. granulation and faculae seen

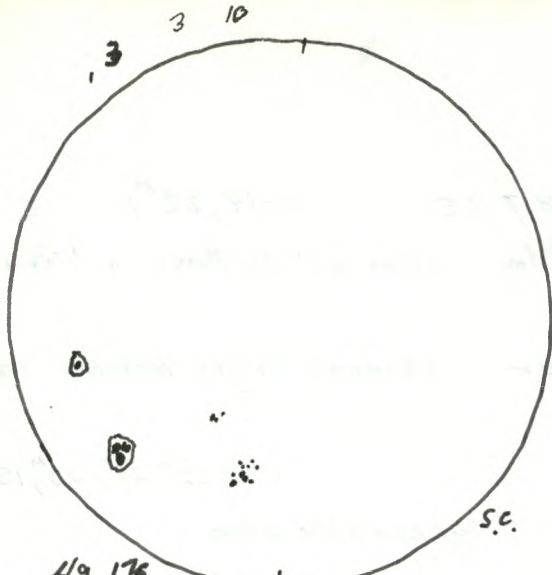
W. Aug. 12. 20:10-21:15 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 3g 26s RSN 56 granulation seen

W.-Th. Aug. 12-13 1:30-3:00 UT y S8(?) T8.5. ne and 7x35b.
- observed Perseids which seemed disappointing in numbers since only
8 to 12 were seen - far fewer than might be expected, though
some were bright - 3rd to 0 magnitude with trails 20° to 25°
long.

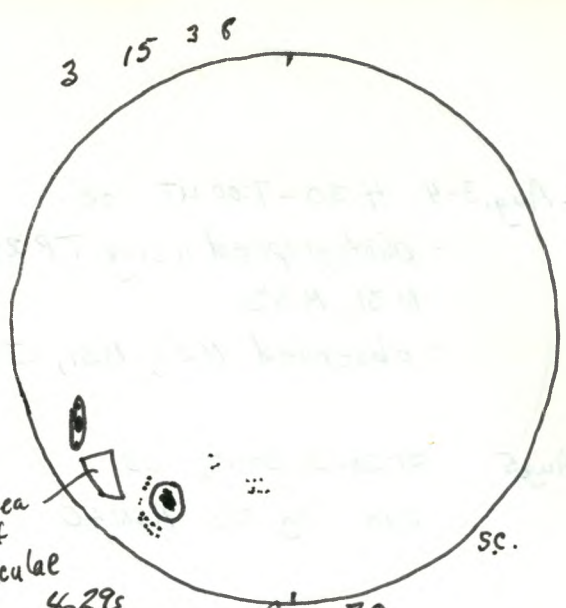
Th.-F. Aug. 13-14 1:30-2:30 UT ^{Syracuse Observatory on Darling Hill} S.9 T9 16" telescope, 26" ocular
saturn, M8, M20, Twin Cluster in Sagittarius, M22, Uranus, search
for NGC 7331; several Perseids, one very bright (-4 magnitude).

F.-S. Aug. 14-15 1:00-3:30 UT ^{Syracuse Observatory on Darling Hill, Vesper, N.Y.} intermittent Cloud 11x80b
Uranus, Neptune, M56, M8, M20, - was co-winner of observing
contest with Denise Sabatini, and with another group. - M22, M28, M13, M31,
M11, M26, M17, M18, M16.

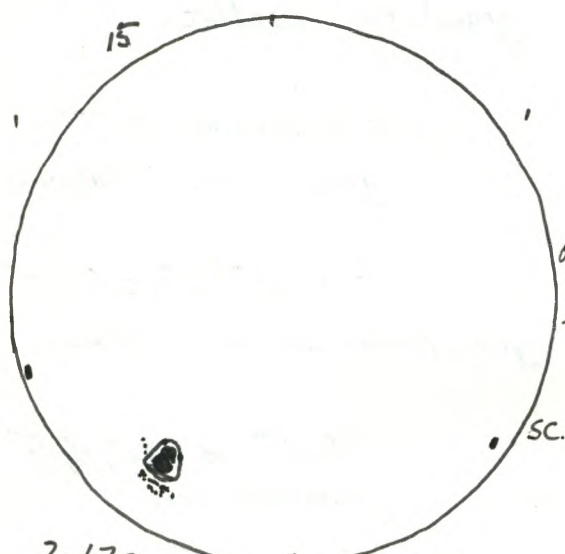
S.-S. Aug 15-16. 2:00-5:00 UT ^{Syracuse Observatory Darling Hill, Vesper N.Y.} 16" red 11x80b.
Moon, Jupiter, M22, M8, M20, M51, M27,



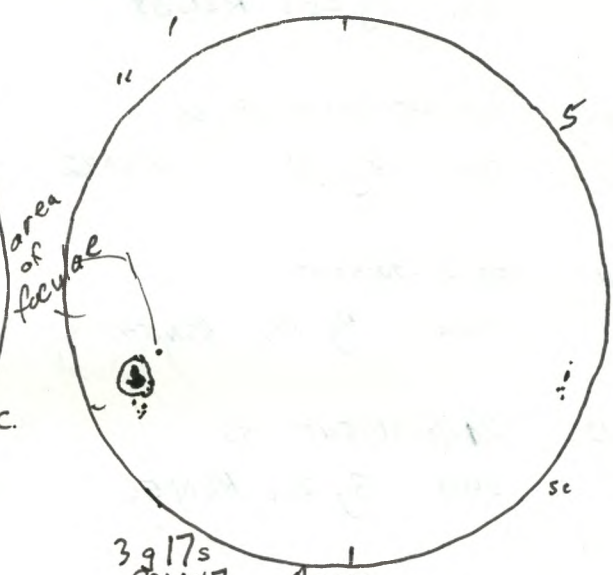
4g 17s
RSN 57 Aug. 18



4g 29s
RSN 69 Aug 20

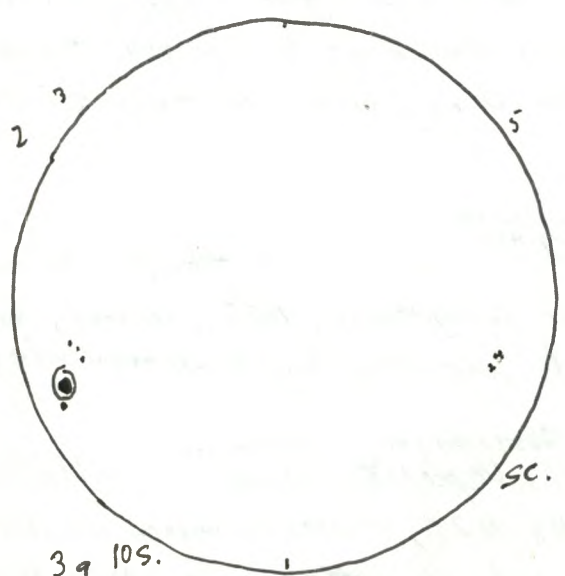


3g 17s
RSN 47 Aug. 21



3g 17s
RSN 47 Aug 22

w. T Aug. 19-20
in lead
skins were
amazingly
transparent
in spite of
the light near
the yard.



3g 10s.
RSN Aug. 23

1987 Tu. Aug. 18 19:05-19: UT SS.

C-8, 32^m, 28^m, 20^m, 15.5^m

sun 4g 17s RSN57

T.-w. Aug. 18-19 2:00-3:30 UT 00

C-14, 40^m, 9^m.

Saturn with 9^m ocular

M92, M13, NGC 6207, search for galaxy said to be between M13 and NGC 6207 but it was not seen with certainty.

Clouds ended the session.

Th. Aug. 20, 21:06-21:12 UT SS.

C-8, 32^m, 28^m, 20^m, 15.5^m

sun 4g 29s RSN69 granulation seen

Th.-F. Aug 20-21 2:00-5:00 UT 00 intermittent cloud

C-14, 32^m; 11x80b

with 11x80b.: Neptune, Uranus, M11, M16, M17, M18, M22

with C-14: Stephan's Quintet, NGC 7331, M13, M92, α Her

F. Aug. 21 22:00-22:08 UT SS.

C-8, 32^m, 28^m, 20^m, 15.5^m

sun 3g 17s RSN 47 granulation seen

S. Aug. 22 20:00-20:15 UT SS

C-8, 32^m, 28^m, 20^m, 15.5^m

sun 3g 17s RSN 47 faculae evident.

S.-S. Aug. 22-23 2:00-5:00 UT 00

S 9(?) T 9.5

C-14, 32^mE

M57, NGC 5905 and 5908 in same field, 5907 - large edge-on galaxy (!), 5879, 5473, 5485, 5982 and 5985 - very close, 7331, Stephan's Quintet, M101, M102 (NGC 5866), M75, M56, M29, M72, M73,

(NGC 7009)

Saturn Nebula, NGC 16, NGC 23, NGC 404, Jupiter.
(with guest: Dennis Sabatini)

Su. Aug. 23 18:00-18:10 UT

SS.

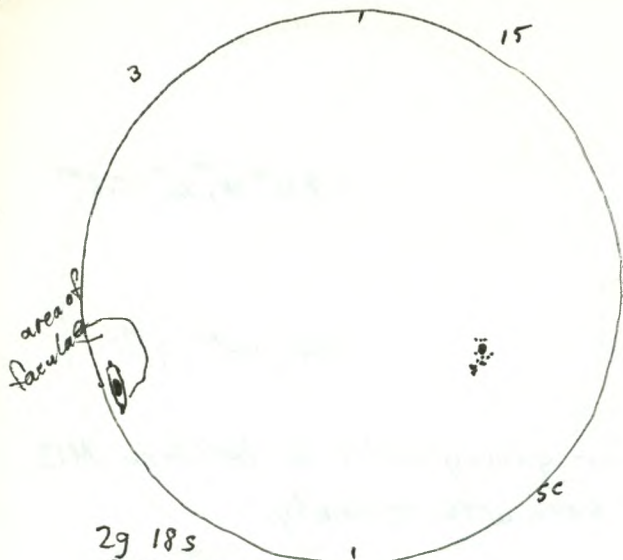
C-8, 32^m, 28^m, 20^m, 15.5^m

sun 3g 10s RSN40

S.-M. Aug. 23-24. 2:00-3:00 UT Y

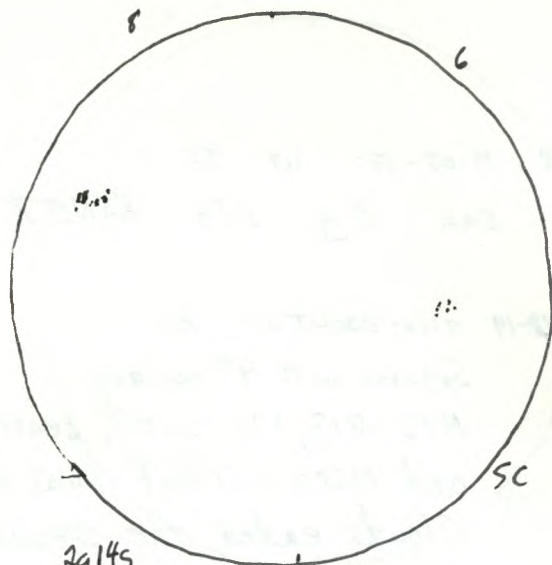
intermittent cloud. ne. and 11x80b.

several meteors possibly from same shower - ? Kappa Cygnids,



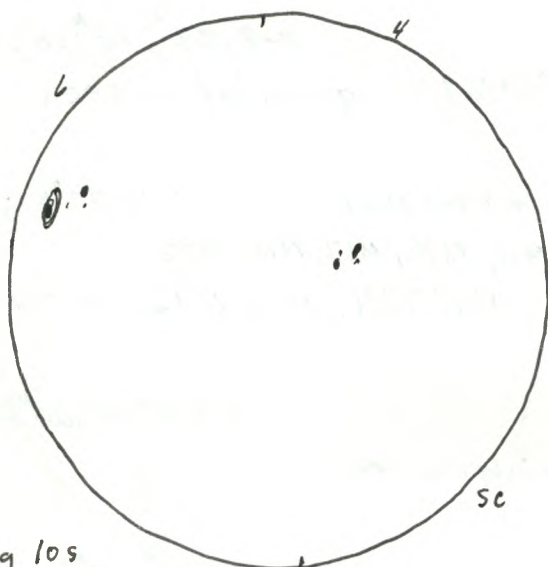
2g 18s
RSN 38

Aug. 24.



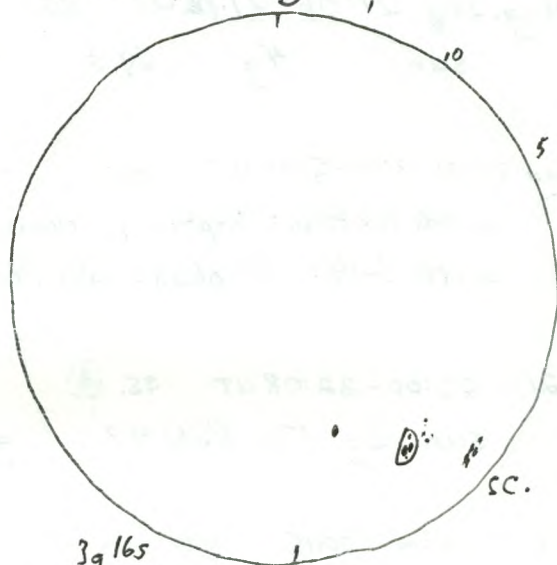
2g 14s
RSN 34

Aug. 25.



2g 10s
RSN 30

Aug. 26.



3g 16s
RSN 46

Sept. 2.

M22, M16, M17, M11, M10, M12, M51, M31.

M. Aug. 24. 19:50-20:00 UT SS. C-19, 32^m, 28^m, 20^m, 15.5^m
sun 2g 18s RSN 38

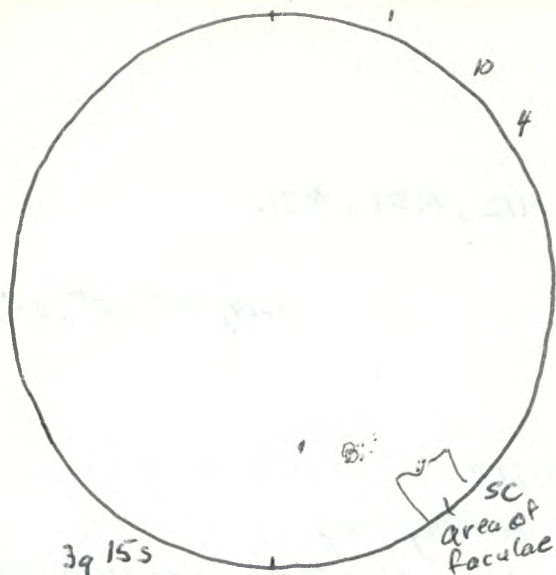
M-T. Aug. 24-25 2:00-6:20 UT 00 S9(?) T9 C-14, 26^mP
- photographed various areas of the Milky Way
- observed δ Aquarii (double-split), NGC 7606 and NGC 7600
near λ Aquarii, NGC 7448 and NGC 7454 near α Pegasi,
NGC 404 near β ~~Pegasi~~ Andromedae, NGC 7814 near γ Pegasi,
M2, Jupiter

Tu. Aug. 25 18:20-18:26 SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 2g 14s RSN 34

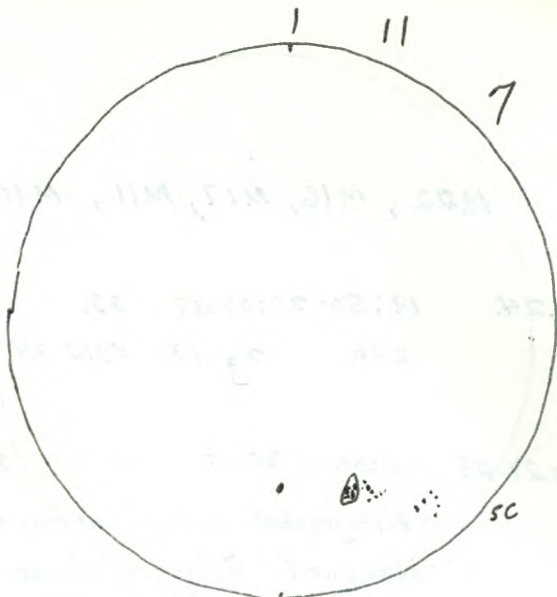
T-W. Aug. 25-26 1:40-4:15 UT S9(?) T8.5. ne and 11x80b.
An excellent Auroral Display - for about an hour
with spikes in north and beam from east and west
meeting in Zenith and becoming a 5°-wide band which
shifted and swirled meeting Milky Way at right-angles.
At zenith activity became intense and bright with
an arc 30° long forming and pulsating in bars
from east to west. The brightest part of the band
then shifted to the N.W. Later this activity
subsided and the northern sky up 60° was filled
with a bright glow having pulsating and flaming
activity
- photographed the Aurora
- with 11x80b: M15, M2, M92, M16, M17, M11, M13,
M31, M32, M33.

W. Aug. 26 17:40-17:45 UT C-8, 32^m, 28^m, 20^m, 15.5^m
sun 2g 10s RSN 30

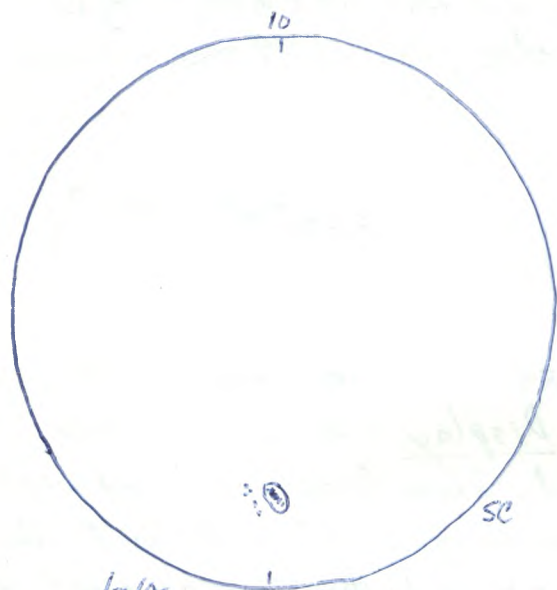
W. Sept. 2 15:30-15:35 UT C-8, 32^m, 28^m, 20^m, 15.5^m
sun 3g 16s RSN 46



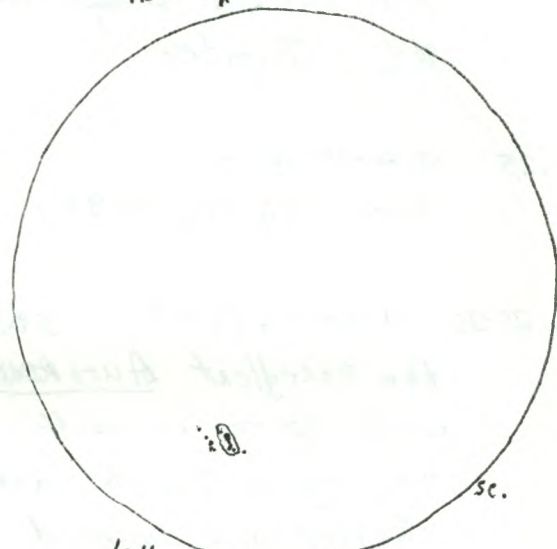
3g 15s
RSN 45 Sept. 3



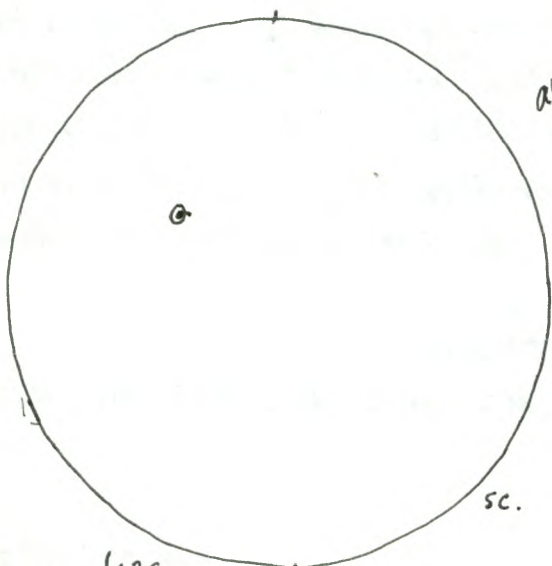
3g 19s Sept. 4
RSN 49



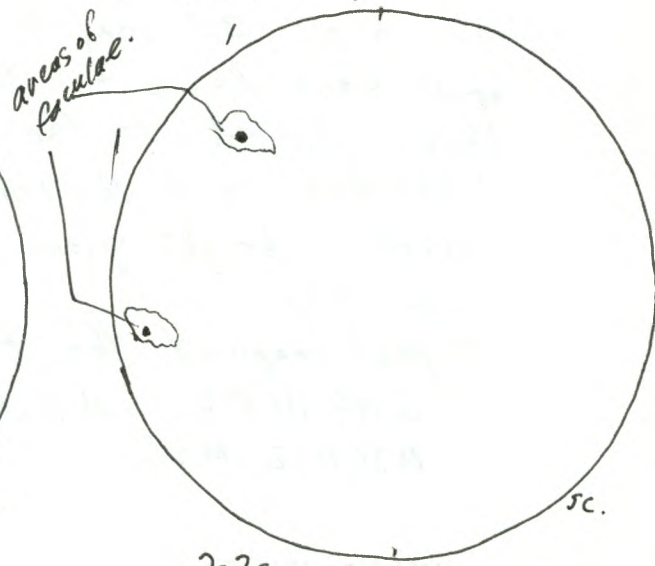
1g 10s
RSN 20 Sept. 14



1g 11s
RSN 21 Sept. 15



1g 2s
RSN 12 Sept. 24



2g 2s
RSN 22 Sept. 27

1987 Th. Sept. 3 17:35-17:40 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 3g 15s RSN 45 faculae evident

Th.-F. Sept. 3-4 06:45-06:55 UT n. deck S 9(?) T 9.5 ~~8, 32~~ 11x806
M15, M36, M37, M38, M31, M33

F. Sept. 4 18:45-18:50 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 3g 19s RSN 49

M. Sept. 14 20:50-20:56 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 1g 10s RSN 20 - granulation evident

M.-T. Sept. 14-15 01:05-03:00 UT 00 S 8.5(?) T 8.5 C-14, 32^m (13^m 49^m for ^{M57})
ε Lyrae, α Cnv, Saturn, M11, M22, Twin Globulars near
γ Sagittarii, M57, Cluster near Col 399, M20, M8, M92, M13,
NGC 6207, NGC 6239 (in Hercules, very faint and quite small),
ν Dra (wide double), γ Del (double), M27, NGC 185,
NGC 278, M31, M32, M110, M33.

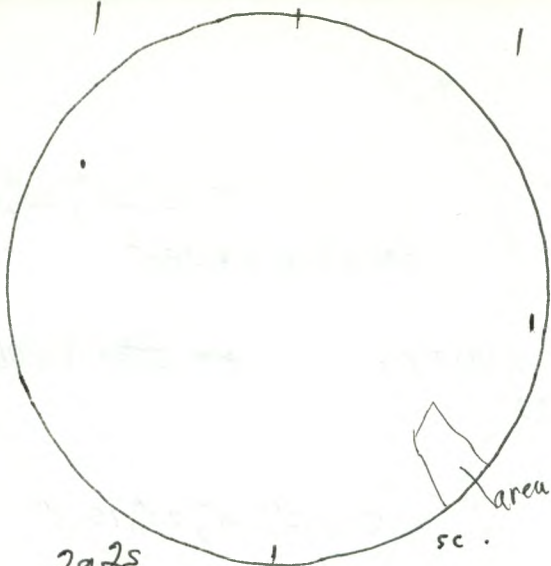
Tu. Sept. 15 21:05-21:10 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 1g 11s RSN 21

T.-W. Sept. 15-16 00:40-00:55 UT SS Astroscaen, 28^m, (8^m for Saturn)
M51, M11, M22, M8, M20, Saturn, M10, M12, M31, M110

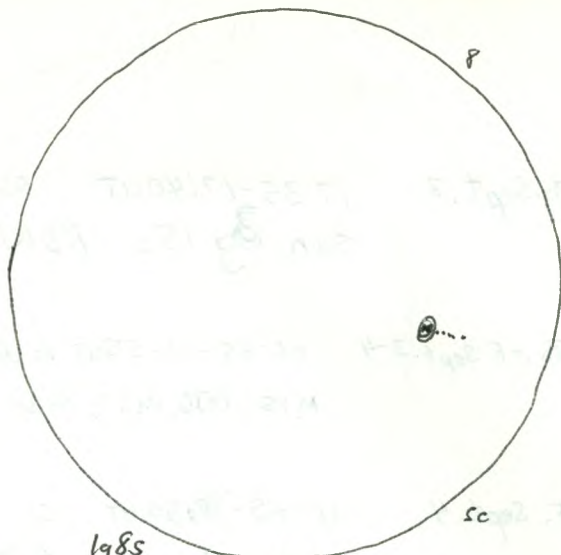
Th. Sept. 24 21:05-21:10 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 1g 2s RSN 12

Sa. Sept. 27 19:46-19:54 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 2g 2s RSN 22 granulation seen.

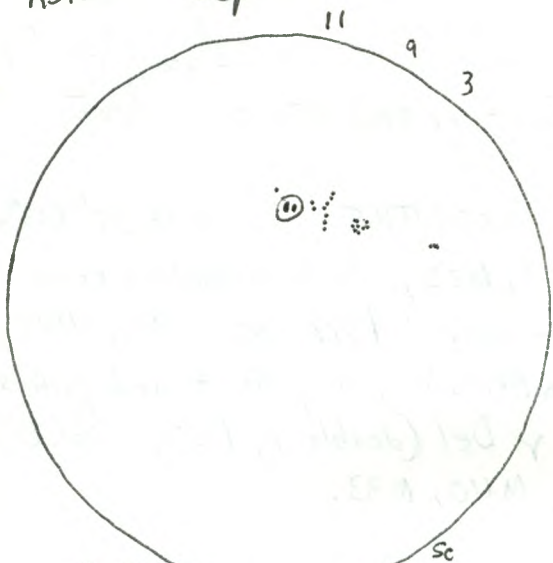
M. Sept. 28 21:40-21:48 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 2g 2s RSN 22 hazy conditions.



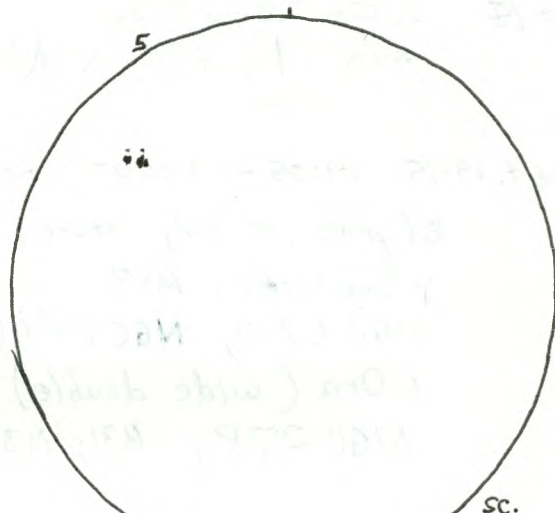
2g 2s
RSN 22 Sept 28.



1g 8s
RSN 8 Oct. 1

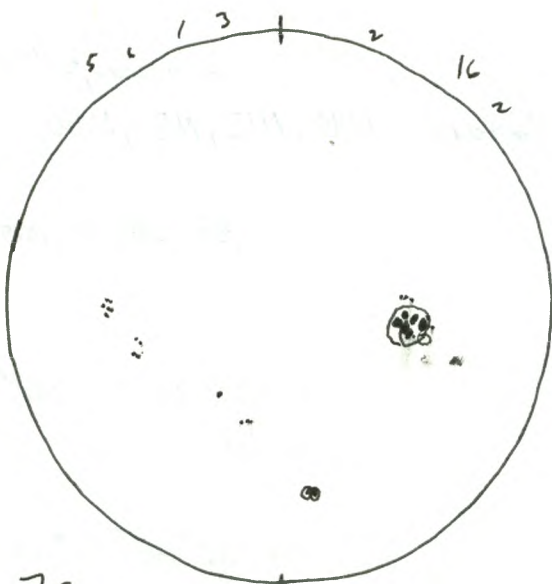


3g 23s
RSN 53 Oct. 5.



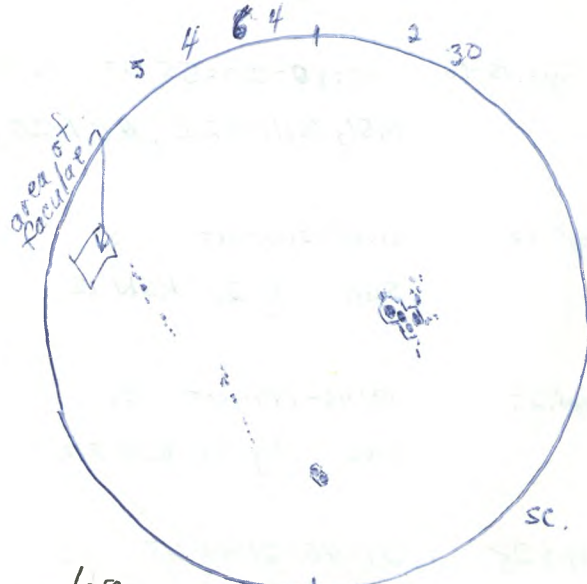
1g 5s
RSN 15 Oct. 8.

3rd Comet Levy
discovered
Oct. 11-12, 1987
in Bootes
Near TT Boo.



7g
35s
RSN 105

Oct. 13



6g
51s
RSN 111

Oct. 14.

1987th Oct. 1 19:45-19:50 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 1g 8s RSN 18

^{m.} Oct. 5 21:10-21:15 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 3g 23s RSN 53

^{th.} Oct. 8 21:00-21:05 UT table at ss. C-8, 32^m, 28^m, 20^m, 15.5^m
sun 1g 5s RSN 15

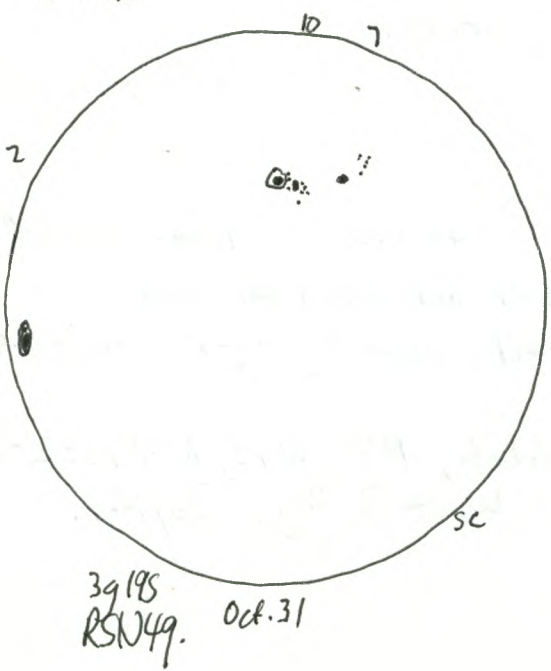
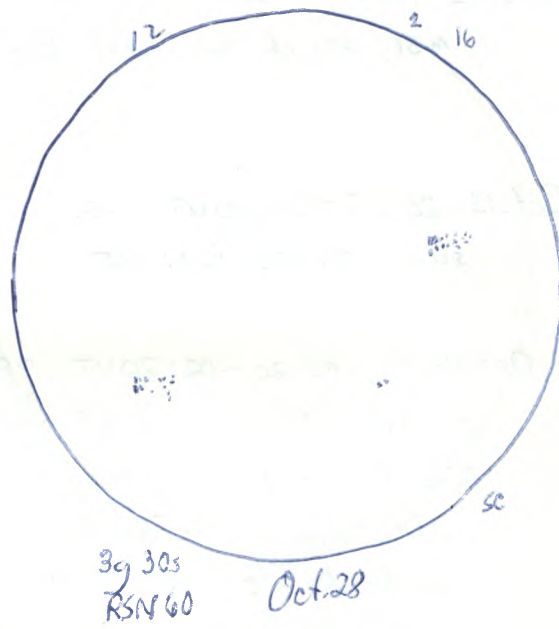
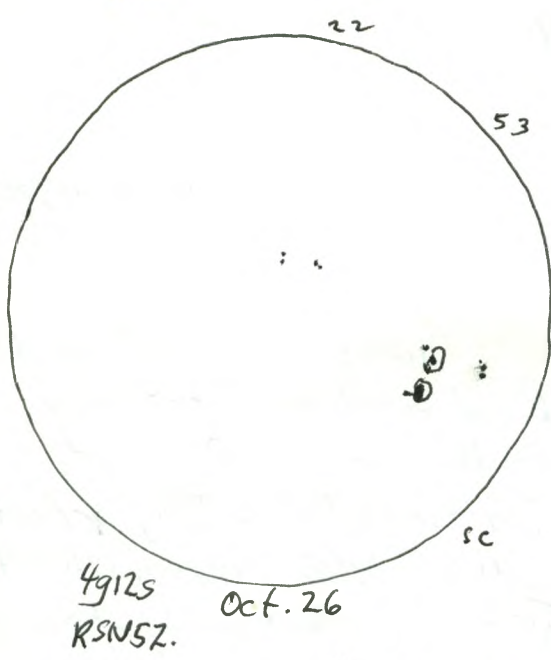
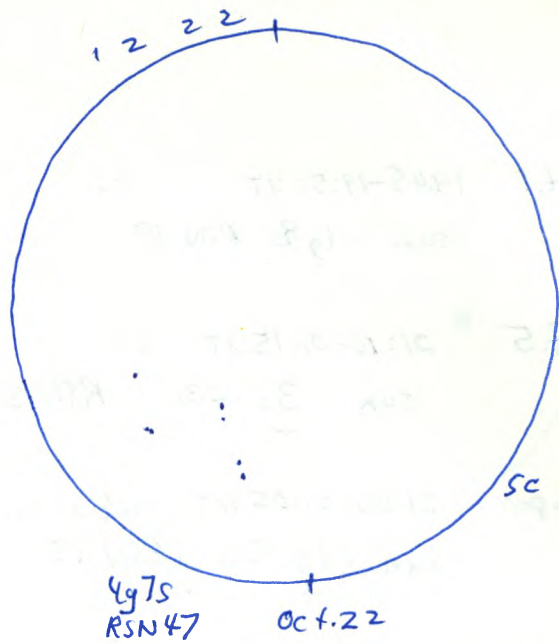
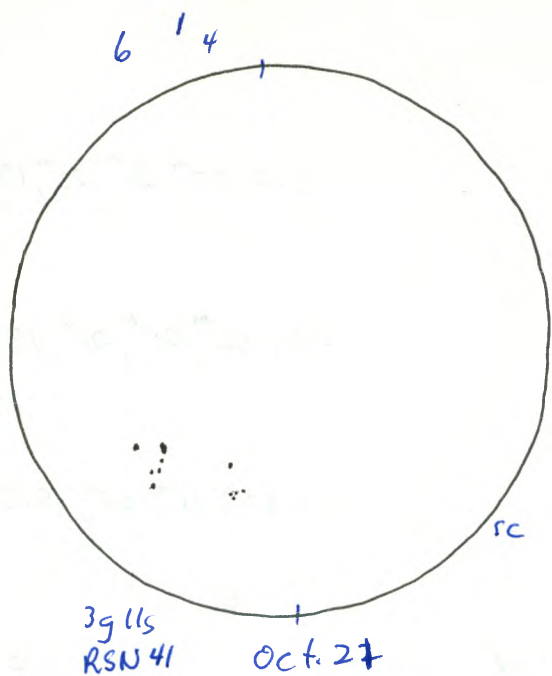
S-M. Oct. 11-12 00:00-00:30 UT 9th Concession N. of Road. S 9(?) T 9. 11x806.
M31, search for Comet Bradfield.

Tu. Oct. 13 20:25-20:30 UT SS. C-8, 32^m, 28^m, 20^m, 15.5^m
sun. 7g 35s RSN 105

T.-W. Oct. 13-14 00:20-02:20 UT 00 11x806; C-14, 32^m Kand E
with 11x806 - Comet Bradfield and looked for Comet Levy
- with C-14: Jupiter, Comet Bradfield near ν Ophiuchi,
Draconis - wide double, NGC 6934 - small GC in Del, γ Arietis -
wide double, M32, M33, M31, M110, NGC 7448 and NGC 7454 -
near α Pegasi, NGC 7600 ^{and} NGC 7606 - faint galaxies in Aquarius,
NGC 7585 - also a galaxy in Aquarius.

W. Oct. 14 20:15-20:20 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 6g 5s RSN 111

W.-Th. Oct. 14-15 00:00-02:00 UT 00 S 9(?) T 5 11x80; C-14, 32^m
with 11x806: Comet Bradfield and looked for Comet Levy.
with C-14: Comet Bradfield, large, bright - mag about 6.5(?)
with a short tail
M15, M2, Saturn Nebula, M72, M73, NGC 7332 - a very
thin edge-on spiral W. of λ Peg, Jupiter.



1987 ^{W.} Oct. 21 20:55-21:00 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m
Sun 3g 10s RSN 41

^{W-Th.} Oct. 21-22 23:40-00:20 UT y S9(?)T8 11x806
Comet Bradfield near (sw) M10 in Ophiuchus and
very bright - about mag. 6.; M31, M33, M13, M92, M22.
M10, M12.

^{Th.} Oct. 22 20:50-20:55 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m
Sun 4g 7s RSN 47

^{F.} Oct. 23 20:50-20:52 UT ss C-8, 32^m
Sun 0g 0s RSN0 Clouds hindered extensive viewing.

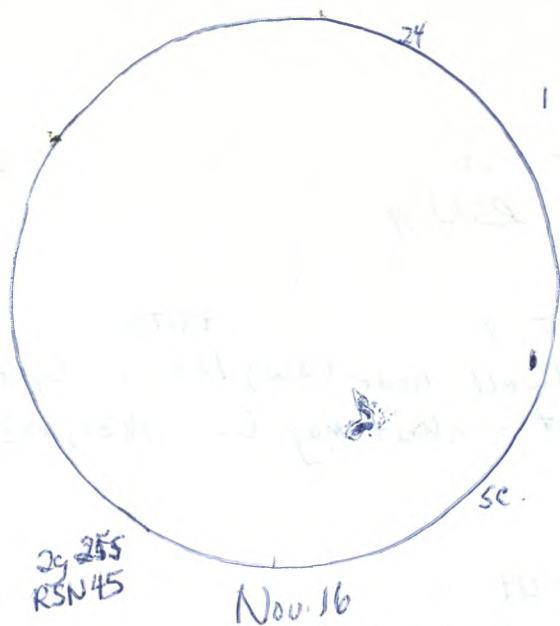
^{S-M} Oct. 25-26 23:10-3:00 UT y, 00 S9.5T9 11x806; C-14, 32^mE, 9^mN
11x806: Comet Bradfield - in Ophiuchus - 6 mag.
C-14: - Comet Bradfield, M13, M92, M15, M57, M31, M32, M110,
M33
guests: G. Giller, A. Cox, S. Paszkewicz

^{M.} Oct. 26 20:50-20:55 UT s.s. C-8, 32^m, 28^m, 20^m, 15.5^m
Sun 4g 12^s RSN 52.

^{M-T.} Oct. 26-27 23:40-01:40 UT 00 S9T8.5 C-14, 40^mN
-searched for Comet Levy 1987y in Serpens Caput, but
did not see it with certainty, M27, M13,
M32, M31, M110, M33, Jupiter.

^{W.} Oct. 28 21:10-21:15 UT table near ss C-8, 32^m
Sun 3g 30s RSN 60

^{S.} Oct. 31 16:05-16:10 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m
Sun 3g 19s RSN 49



Nov. 11:

I saw Venus in west in evening while travelling in car to Kingston for a meeting. It was low in the west after sunset. (up about 5°)



Dec. 7:
22:40 UT

Ganymede



shadow of Ganymede

Ganymede Dec. 8: 2:00 UT
after its transit

? Dec. 17

Solar observation:
but too cloud covered to be recorded as proper observation

(* see Mira (o Cet) chart in S. 47 Dec. 1987, p. 636)

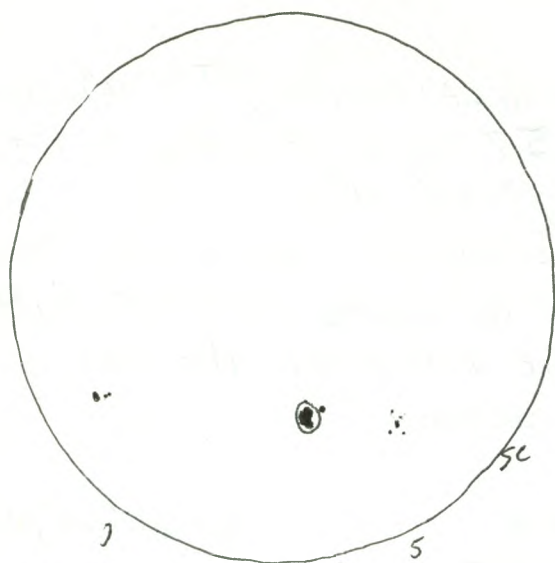
1987 Sa-Su Nov. 14-15 23:20-3:30 UT Darling Hill S.A.S Observatory S. & T. 9. 16" Newtonian
Comet Bradfield Mag. 5.7 very bright with over 1° tail
Jupiter, M31, M32, M42, M33
- involved with S.A.S. members in showing these objects to about 20 Girl Scouts and a few adults.
- A number of sporadic meteors was also seen.
- Excellent observing session.

M. Nov. 16 20:40-20:45 UT n. deck C-8, 32^m, 28^m, 20^m, 15.5^m
sun 2g 25 s RSN 45

M.-T. Dec. 7-8 22:10-22:50 UT y and table at s.s. 11x80 b; C-8, 32^m, 28^m, 20^m, 15.5^m
with 11x80 b.: Comet Bradfield - about mag. 6 - in Delphinus -
with a tail 1°-2° in length (before end of Ast. Twilight
with C-8: Venus - gibbous - low in West; Jupiter with
Ganymede in transit
1:50-2:20 UT ss s7(?) T-7 (moon) C-8, 32^m, 28^m, 20^m, 15.5^m, 9^m
Jupiter with Shadow Transit of Ganymede after completion
of Ganymede's Transit; M42, Trapezium, Pleiades.

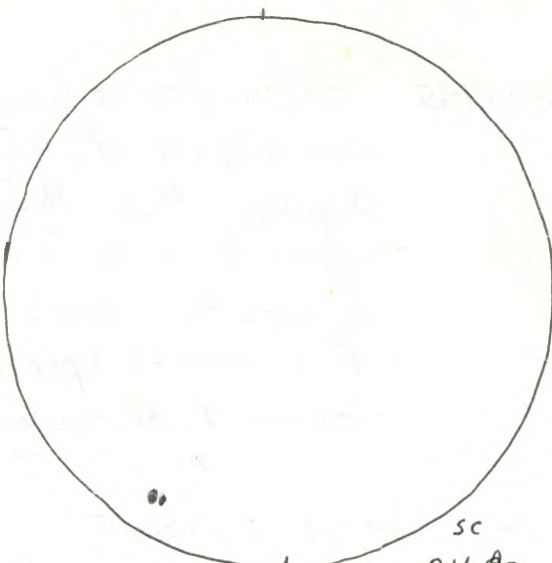
M.-T. Dec. 14-15 00:00 - 00:40 U.T. some cloud (Ep. 2000.6) 11x80; and Astroscan, n
- Comet Bradfield (1987s) (Position: R.A. 21^h 28^m. Dec.: +22° 4')
at about 6.0 mag., with distinct tail about 1°
in length - seen in binoculars (short) and telescope.
- Pleiades, Jupiter - 3 moons seen, M36, M37, M38.

M.-T. Dec. 21-22 00:30-01:55 00 s7(?) T 9 intermittent cloud C-14, 30m
Comet Bradfield in Pegasus at about 6 mag. with excellent
tail about 1½°-2° in length as also seen in 11x80 b.
Jupiter, M1, M42, M43.
2:00-2:55 y s7(?) T. 9. 11x80 b.
R Lep (barely visible in 11x80 b), RX Eri (beyond visibility in
11x80 b), o Cet*, HU Tau (See S. & T. Nov. 1987 p. 512)
NGC 1647-OC in Tau, probably (?) asteroid Nysa - near θ' Tau
at about mag. 9 (See S. & T. Dec. 1987. p. 637)



3g 10
RSN 40

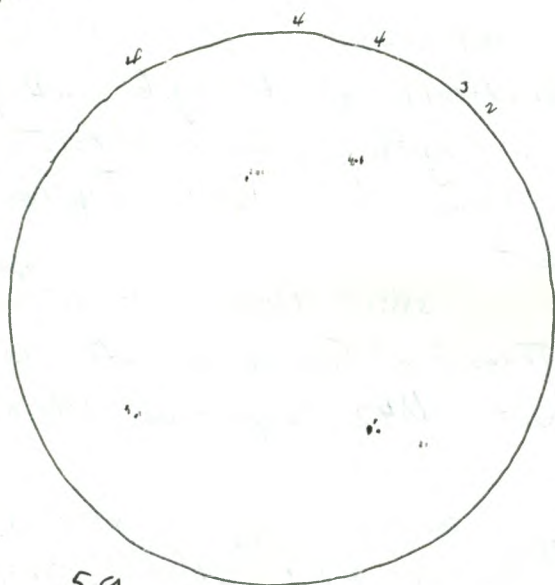
Dec. 30



1g 2s
RSN 12 Jan. 5

sc
Alt. Az.
viewing

- 2 comets
easily visible.



5g
17s
RSN 67

Jan. 9

Comet
near
NGC 1 and
NGC 2

o Jupiter

1987 T.-W. Dec. 22-23 1:30-2:00 y s-? F-4 (haze) 11x80b; ne

- Comet Bradfield 1987s in Pegasus - about 6 mag., Jupiter, M42.

- looked for Ursid meteors but did not knowingly see any.

W.-Th. Dec. 23-24 01:30-03:55 UT ss and y and ss τ -9 (but much ^{cloud}) C-14, 32, C-8, 32, 11x80b.

C-14: - Comet Bradfield 1987s - about mag. 6 - in Pegasus - tail about 1°

- tried to photograph it; viewing M42, M43, Jupiter

C-8 - Comet Borrelly 1987p - near Aries-Cetus border - about mag. 7

but scarcely any tail visible

11x80b: Comet Bradfield, M42

W. Dec. 30 18:30-18:35 UT ss

C-8, 32^m, 28^m, 20^m

sun 3g 10s RSN40

W.-Th. Dec. 30-31

01:00-01:20 UT ss. τ -6 ^{moonlight} some cloud, haze C-8, 32^m

Jupiter, Ori, Comet Bradfield - about magnitude 6.5, M42 - Trapezium, lunar craters, 1 bright meteor about mag. -2

1988 Tu. Jan. 5

20:50-20:55 UT s. deck poor seeing (low altitude) C-8, 32^m

sun 1g 2s RSN uncertainty because of low altitude of sun

W Jan. 6

20:55-21:00 UT s. deck sun low - in trees C-8, 32^m

now spots seen - no official recording - trees interfering.

W.-Th. Jan 6-7

00:10-00:40 UT y s 9 T 9

11x80b.

M42, M45, M36, M37, M38, Jupiter, Comet Bradfield 1987s

cold!

at R.A. $0^h 08^m$ Dec. +26.5 Epoch 2000.0 M35

looked for Comet Borrelly ^(1987p) which was not seen with certainty.

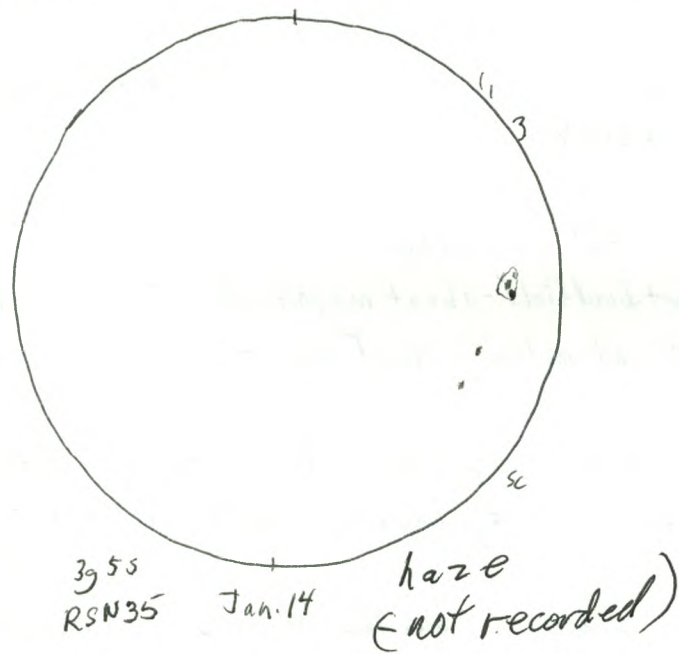
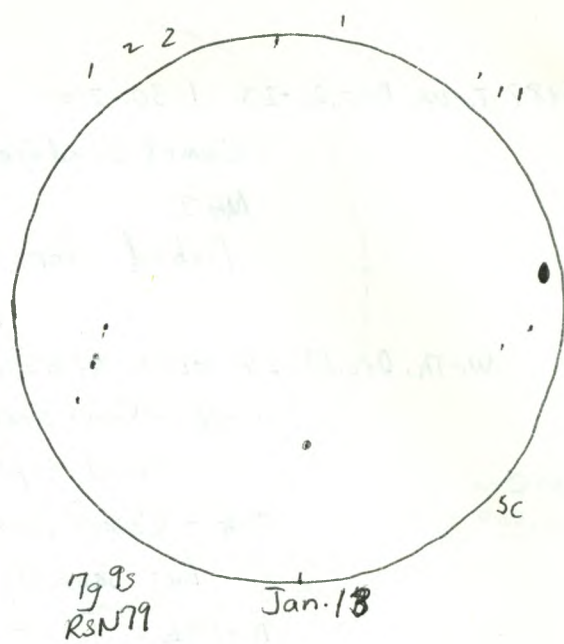
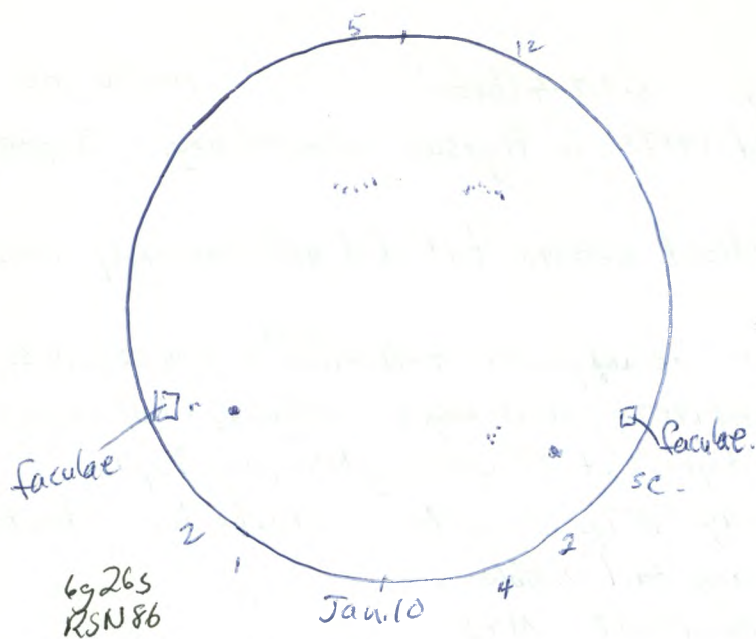
- 4 Galilean moons of Jupiter seen on one side of planet.

Sa Jan. 9

19:45-19:50 UT ss

C-8, 32^m

sun 5g 17s RSN67



1988 S-S. Jan. 9-10 00:30-03:30 UT y. s.o.o. S-9(?) T. 9.5 ? 11x806. + C-14, 32^m.

11x806: Comet Bradfield, M42, R Lep. (Mag. 9.0), RX Lep., looked for RX Eri, HU Tauri (mag.: 5.8)

C-14; Comet Bradfield (mag. 7.0 (?)), NGC 185, NGC 147 (large and diffuse) NGC 278 (relatively bright), M31, M42, Trapezium; looked for NGC 1 and NGC 2 - (perhaps saw one of them - not sure), Jupiter.

Sat Jan. 10 19:10-19:15 UT ss

C-8, 32^m, 28^m, 20^m, 15.5^m

sun 6g 26s RSN 86

S.-M. Jan. 10-11 02:00-02:50 UT y S-9(?) T. 9.5 (excellent!) 11x806.

- Jupiter, Comet Bradfield, M42, M43, Pleiades, M35, M31, M33, M41, R Lep, RX Lep, area of RX Eri but not the star, the asteroid Nysa (probably) near the Hyades (from map in Sky and Telescope, December 1987, page 637.) HU Tauri (see Sky and Telescope, Nov. 1987, page 512.)

1988^w Jan. 13

20:50-20:55 UT table at ss.

C-8, 32^m, 28^m, 20^m, 15.5^m.

sun 7g 9s RSN 79

w-Th.

Jan. 13-14

00:50-02:00 UT y S-9(?) T. 9 (very cold.) 11x806.

Zodiacal Light easily seen.

Jupiter, Comet Bradfield, M42, M43, M44, RX Lep, R Lep., Vesta at R.A. 8^h 26^m Dec. +22° (See S. & T. Jan '88 p. 73 + Uranometria 2000.0 map. 141)

Amphitrite near Castor (See same map in S. & T. and Uranometria map. 101) at R.A. 7^h 44^m Dec. 30.7, Mira.

Th. Jan. 14

20:50-20:55 table at ss haze

C-8, 32^m, 28^m, 20^m, 15.5^m

3g 5s ? RSN 35 not to be officially recorded because of haze

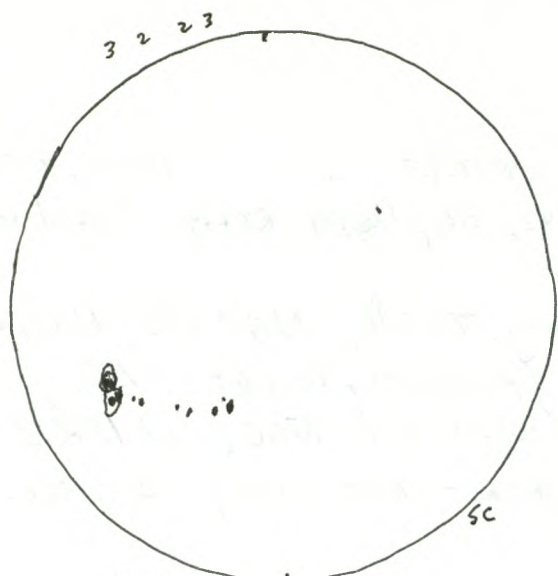
Th.-F Jan 14-15

02:30-03:20 UT y

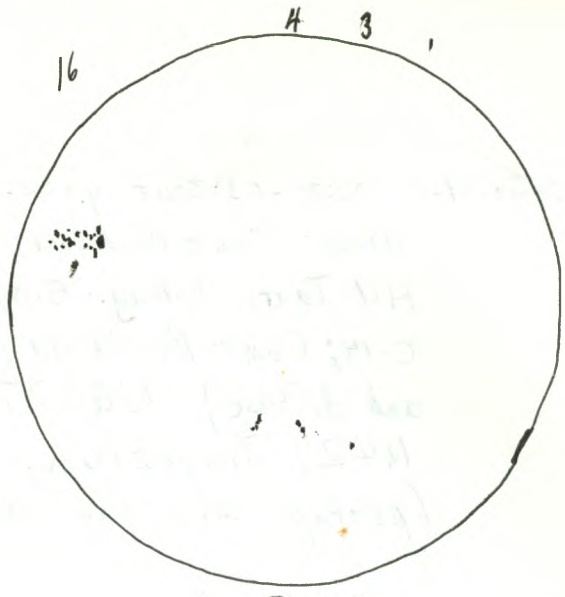
S(9)? T. 9.

11x806.

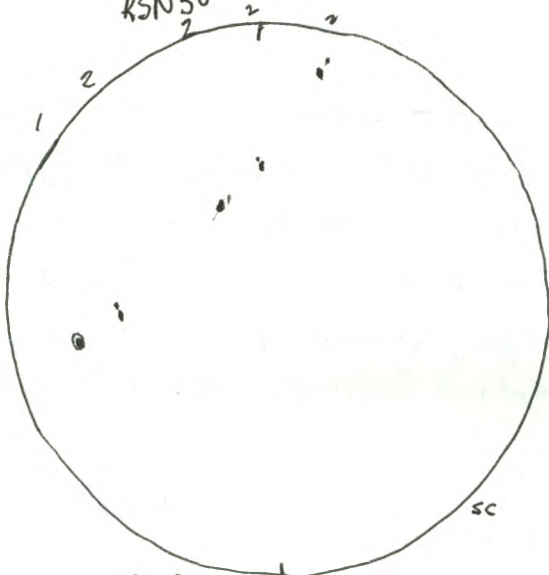
- increasingly active Aurora in large area of northern sky - spikes



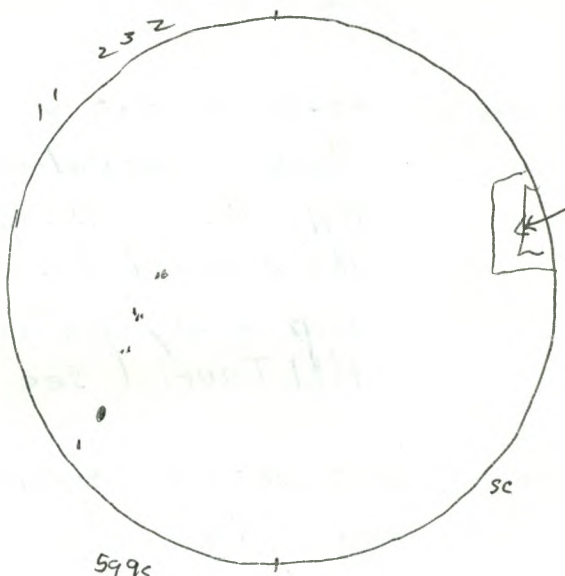
4g 10s
RSN50
Jan. 22



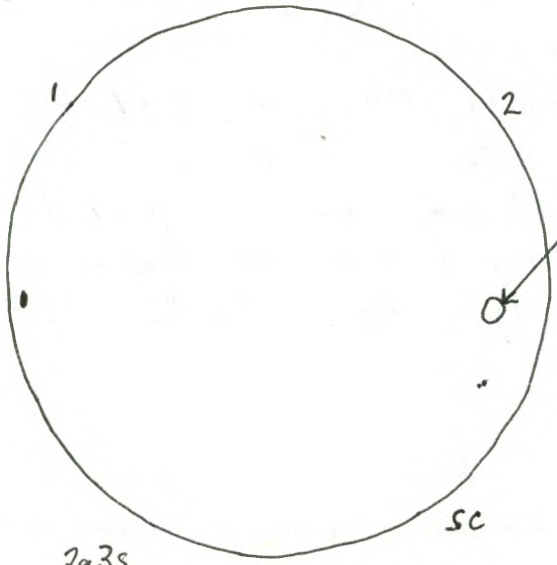
Jan. 27



5g 9s
RSN59
Feb. 2



5g 9s
RSN59
? Feb. 8.



2g 3s
RSN23
Feb. 10.

1988

and flaming and double arcs

- Jupiter, Comet Bradfield, M35, M42, M43, M44, M45,
R Lep, RX Lep, Asteroids Vesta and Amphitrite (see
previous night's observations, Mira - naked eye also.

Th-F Jan. 21-82 05:00-05:35 UT y. s 7(?) twinkling! T9.5 (Superb!) 11x80b.
M42, M43, M44, M45, M1, M51, asteroid Vesta,
- Mira (naked eye)(?), cluster in Rosette Nebula - earlier in the
evening - photographed moon very close to Venus.

F. Jan. 22 20:45-20:55 UT SS C-8, 32^m, 28^m, 20^m (15.5^m)
sun 4g 10s RSN 50

W. Jan. 27 20:35-20:40 UT SS C-8, 32^m, 28^m, 20^m 15.5^m
sun 4g 24s RSN 64

Tu. Feb. 2 21:05-21:10 UT n. deck C-8, 32^m
sun 5g 9s RSN 59 hazy conditions

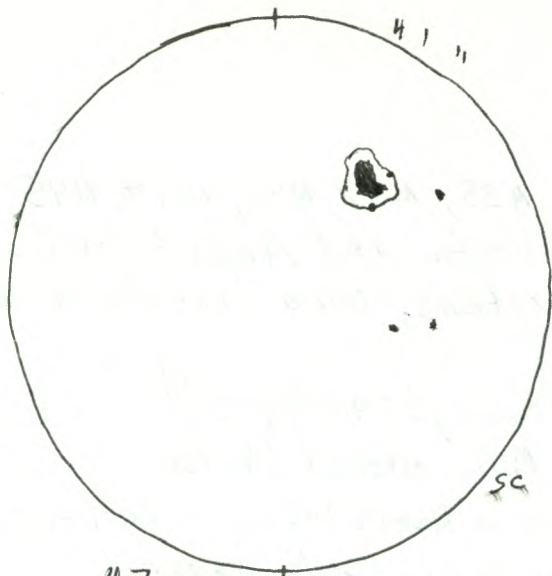
S.-S. Feb. 6-7 01:15-02:15 UT y S8(?) T9 11x80b
M31, M33, M44, M45, M46, M47, M50, M42, M43, asteroid Vesta
near border between Cancer and Gemini, Mira, Jupiter, R Lep, RX Lep,
Hyades, cluster in Rosette.

M. Feb. 8 21:20-21:24 UT table at SS. C-8, 32^m
sun 5g 9s RSN 59.

W. Feb. 10-11 21:15-21:20 UT SS. C-8, 32^m, 28^m, 20^m, 15.5^m
sun 2g 3s RSN 23 bright spot seen.

W.-Th. Feb. 10-11

01:00-03:15 UT SS and y S8(?) T9 C-8, 55^m; 11x80b.
C-8: - M42 and M43, Rosette Nebula area, Jupiter, M1
11x80 - M44, Vesta M42, M43, Jupiter
M42, M43 were stunning with the O III Lumicon filter and
the 55m ocular.



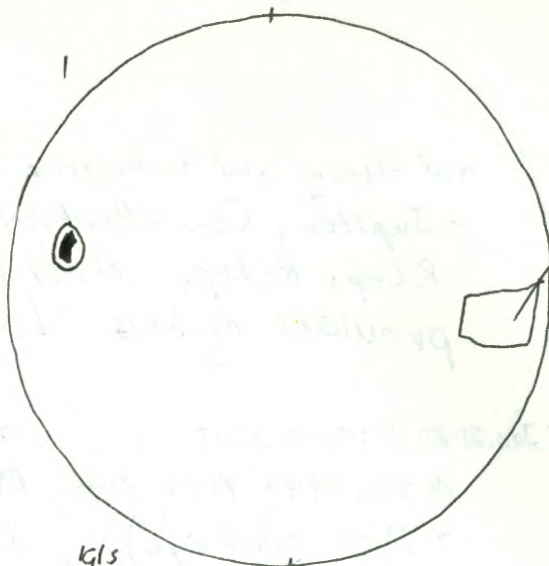
4g7s
RSN 47

Feb. 16.

Faculae

10

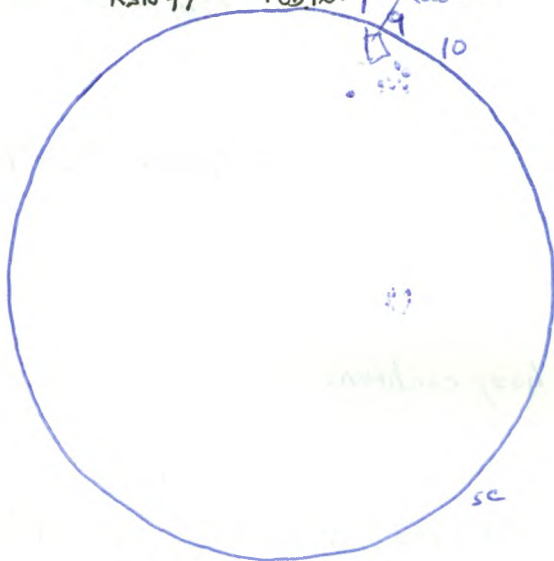
sc



41s
RSN 44

Feb. 23

area
of
faculae

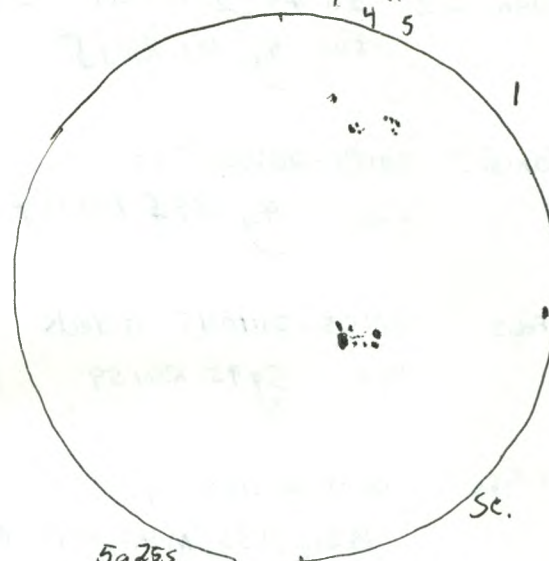


3g20s
RSN 50

Feb. 28

17 29

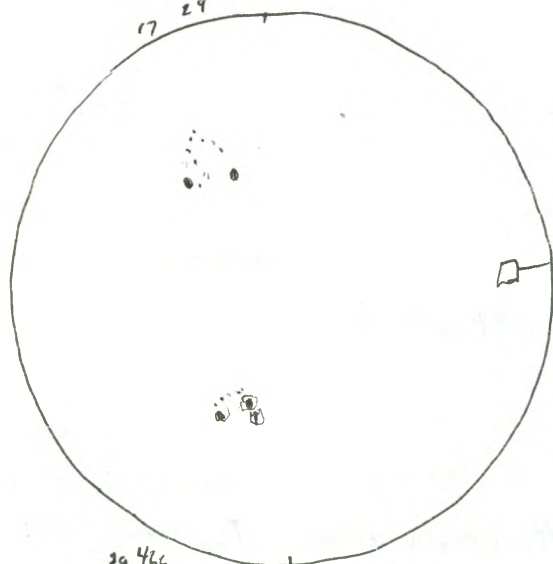
sc



5g25s
RSN 75. Mar. 1.

sc.

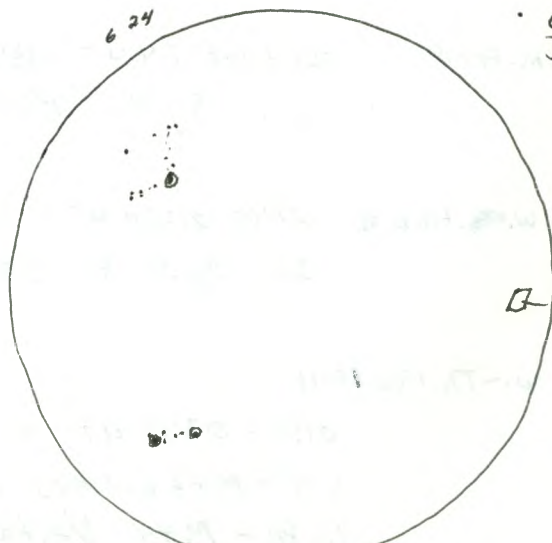
⊙ ..
J (sc)



2g 46s
RSN 66

Mar. 5

Faculae



2g 30s
RSN 50 Mar. 6.

Faculae

⊙ ..
J (sc)

1988 S-S. Feb. 13-14 01:00-02:00 UT ss and y c-8, 19^m and 11x806
with C-8: M42, M43, Trapezium, Jupiter and occultation
reappearance of Ganymede.
with 11x806: Vesta (between M44 and Pollux), R Lep, M45

-Tu. Feb. 16 21:00-21:05 UT ss c-8, 32^m, 28^m, 20^m, 15.5^m
sun 4g 7s RSN 47 one large spot.

-Tu. Feb. 23 20:42-20:46 UT ss c-8, 32^m, 28^m, 20^m, 15.5^m
sun 1g 1s RSN 11 large spot faculae seen.

-T.-W. Feb. 23-24 02:45-04:30 UT ss. SPT9 C-8, 32^m
M42, M43, Lunar Occultation of some stars of Pleiades (See S.I.T.
Feb. 1988 page 180) Occultation Timings
SAO 76183 - 3:12:02 UT; 76194 - 3:25:52; 76210 - 4:04:17; 76216 - 4:07:18.5
76234 - 4:24:37; 76236 - 4:29:01

-Su. Feb. 28 18:50-19:00 UT ss c-8, 32^m, 28^m, 20^m, 15.5^m
sun 3g 20s RSN 50

-M.-T. Feb. 29-Mar. 1 01:00-02:00 UT ss
Venus, Jupiter, lunar craters

c-8, 9^m, 19^m

-Tu. Mar. 1 21:25-21:30 UT ss
sun 5g 25s RSN 75

c-8, 32^m, 28^m, 20^m, 15.5^m

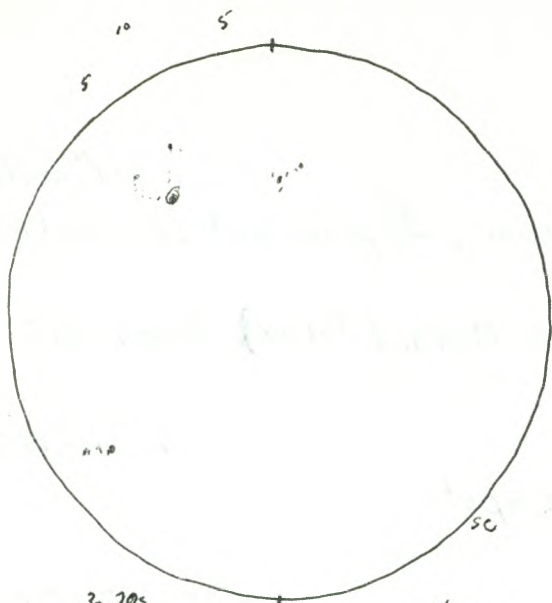
-T.-W. Mar. 1-2 01:30-01:50 UT Table at ss Astroscan, 12^m, 8^m, 8^m 2x Barlow
Venus, Jupiter, M42, Mizar, lunar craters

Th.-F. Mar 3-4 00:00-08:20 S.C. Public School cloud Astroscan, 8^m Barlow
Venus and Jupiter - scout, sub, Beaver observing group.

Sa. Mar 5 15:05-15:20 UT ss c-8, 32, 28, 20, 15.5
2g 46s RSN 66

Sa-Su. Mar 5-6 00:45-01:30 UT ss S9.T9.5 c-8, 13^m, 19^m, 32^m
Jupiter Venus, M42, M43, M44, M45, NGC 2024 (in Rosette Nebula)
Zodiacal Light - very good.

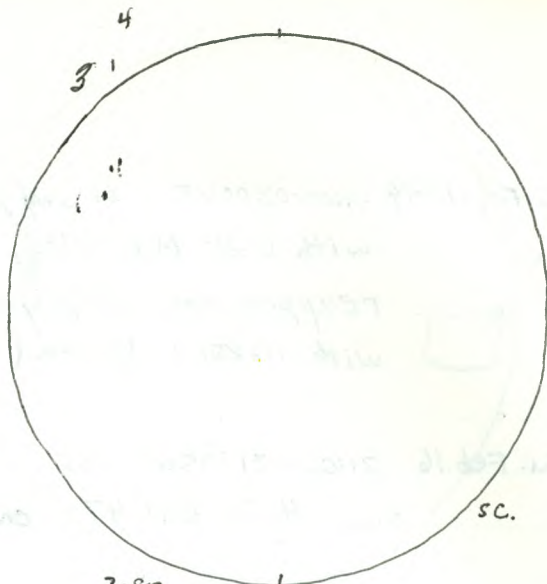
Sa. Mar 6. 19:00-17:05 ss c-8, 32^m, 28^m, 20^m, 15.5^m
sun. 2g 30s RSN 80



39205
RSN 50

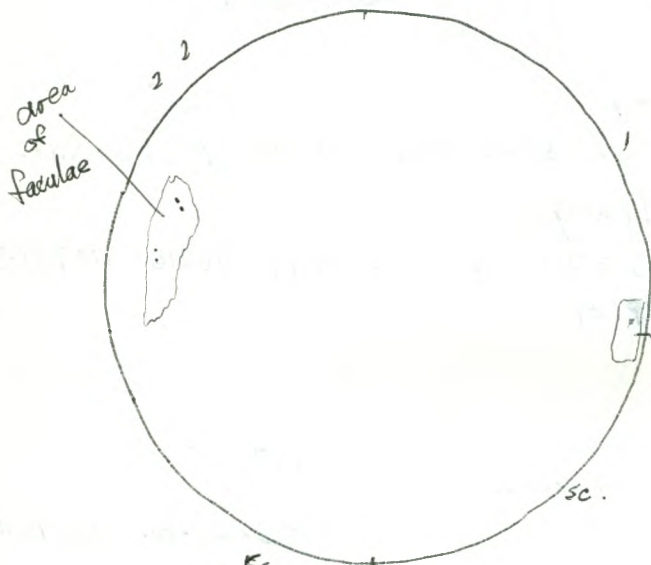
Mar 7

alt. 92.



3985
RSN 38

Mar 10



3955
RSN 35

Mar 11

⊖
~~4(?)~~
4(?)

1988 S-M. Mar. 6-7 01:30-2:40 UT y ^(?) 59 T 9.5 11x80b

M42, M43, M45, R Lep, RX Lep.

Venus, Jupiter in C-8 (near conjunction)

Zodiacal Light - outstanding - probably also Zodiacal light band

M. ~~Mar. 7-10~~ Mar. 7-10 22:00 - 23:05 UT n. deck C-8, 32", 28"

Sun. 3g 20s RSN 50 - sun low - alt-az - on deck.

Mar Tu. Mar. 7-8 01:10 - 03:00 UT 00 S(9)(?) T-10 ^{superb} C-14, 32" and ^{several other} ^{oculars} ^{and filters}

- M42, M43, area of NGC 2244 and Rosette, area of Horsehead Nebula and IC 434 with 32" (and with filter), 40" (and with filter), 55" (and with filter), 19" (+ with filter), 13" (and with filter). - able to see IC 434 nebulosity area near δ Orionis. - probably saw part of Rosette Nebulosity, possibly some of nebulosity in area near Horsehead Nebula.

- Venus and Jupiter, M51, M95, M96, M1

- Zodiacal Light - outstanding - probably brighter in parts than the Milky Way and Light Bridge easily seen above the Pleiades.

Th. Mar. 10 21:25-21:30 ss C-8, 32", 28", 20", 15.5"

Sun 3g 8s RSN 38

Th.-F. Mar 10-11 01:30-0:2:30 y intermittently cloudy 11x80b.

M41, M42, M43, M45, some stars of constellation Pyxis, M51, R Lep.

F. Mar. 11. 21:20-21:30 UT C-8, 32", 28", 20", 15.5"

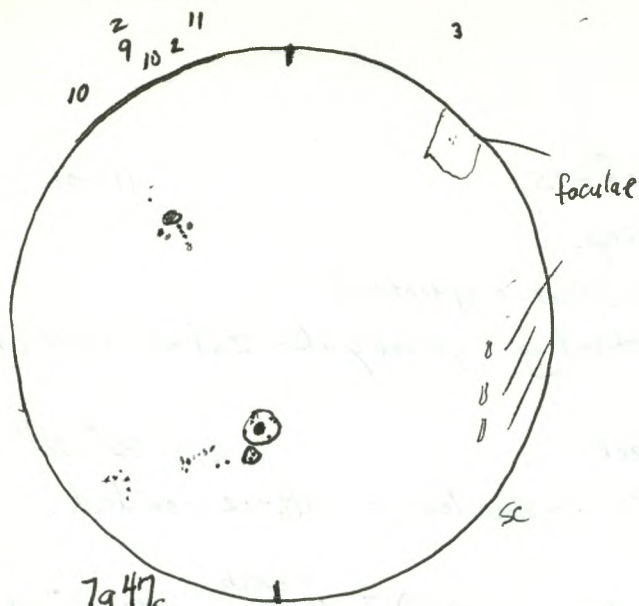
Sun 3g 5s RSN 35 2 areas of faculae.

Th.F Mar 17-18 01:15-01:45 UT 9th line of Andromeda SP? T9. ne x 11x80

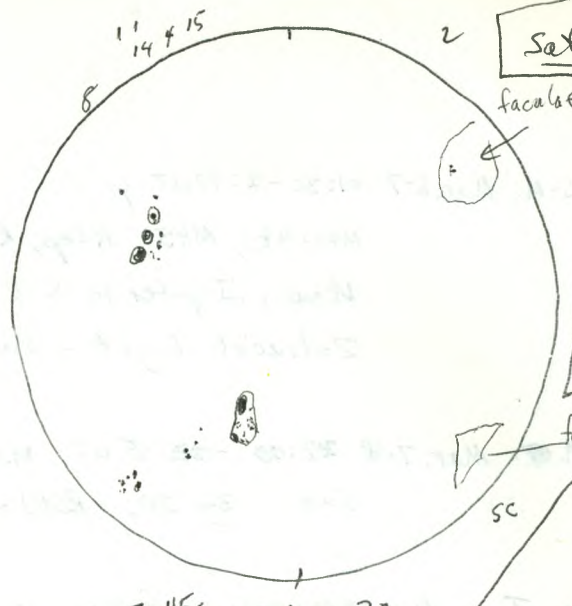
M42, M43, M44, M45, M36, M37, M38, 1 meteor,

F.-Sa. Mar 18-19 05:15-06:15 UT ss C-8, 32"

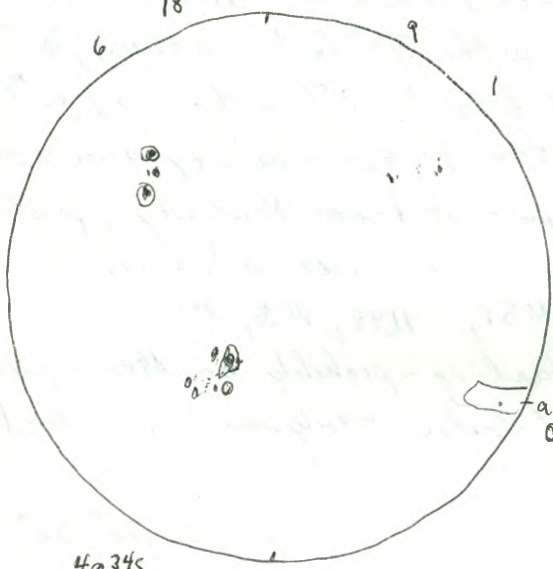
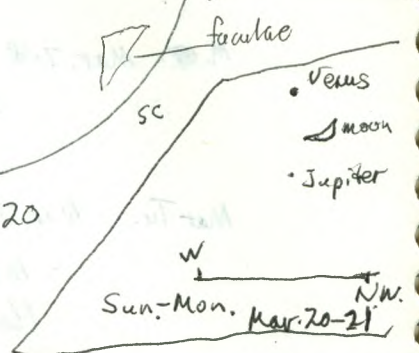
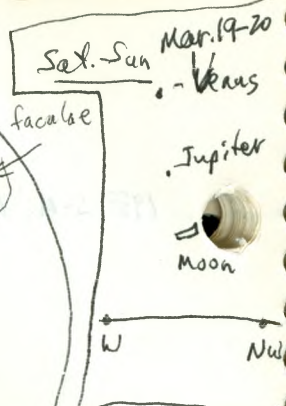
M68, M83.



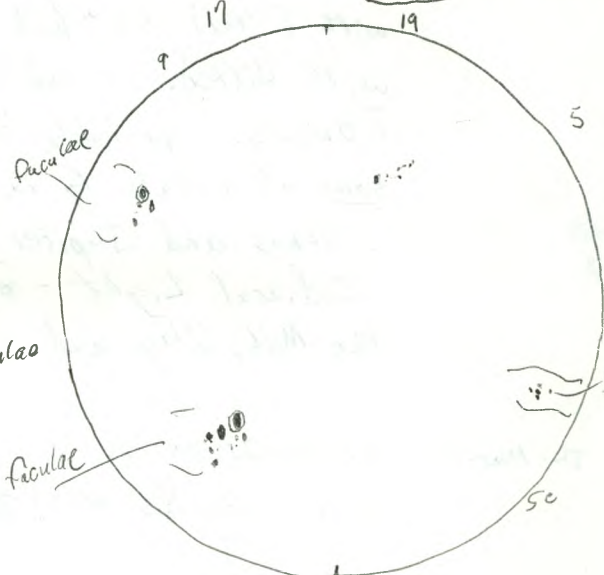
7g 47s
RSN 117 Mar. 19



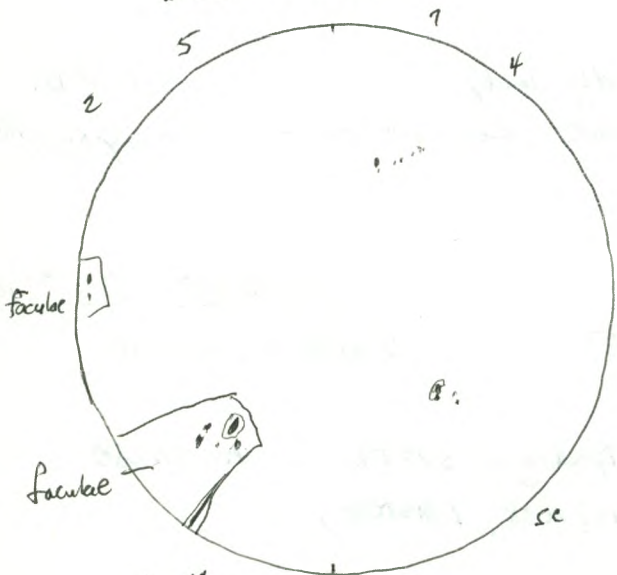
7g 45s
RSN 115 Mar. 20



4g 34s
RSN 74 Mar. 21



4g 50s
RSN 90 Mar. 22



4g 18s
RSN 58 Mar. 23

Positions of Comet Levy 1988e

1950 coordinates

	R.A.	Dec.
Mar 19.5	21 30.0	+16° 2'
Mar 20.5	21 32.6	+16° 48'
Mar 21.49	21 35.2	+17° 30'

- reported about mag. 11
- condensed coma
- tail 1.5 in length in Position Angle 240°

1988^{Sa} Mar. 19 20:05-20:25 UT ss C-8, 32^m, 28^m
sun 7g 47s RSN117

Sa. Mar. 20 19:40-19:50 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m
sun 7g 47s RSN115

S-M. Mar. 20-21 00:00-0600 UT in car twilight ne
← moon, Venus, Jupiter

M. Mar. 21 20:50-20:54 UT ss. C-8, 32^m, 28^m, 20^m, 15.5^m
sun 4g 34s RSN74

M-T Mar. 21-22 23:07 UT s. of house ne
- spotted and observed Venus in clear sky about 12^{min}
before sunset
7:20 - 7:35 UT ne and 7x35b
- Col 399, area of North America Nebula, area of Corvus

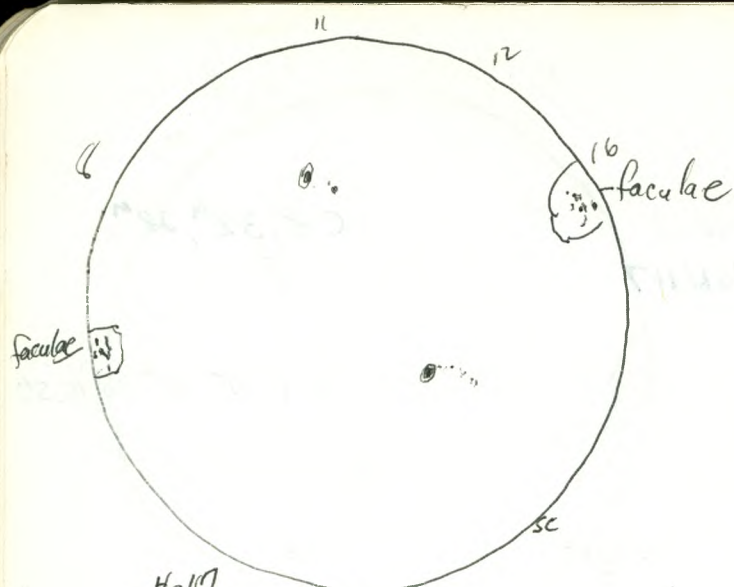
Tu. Mar. 22 20:50-20:55 UT ss. C-8, 32^m, 28^m, 20^m, 15.5^m
sun 4g 50s RSN90

W. Mar. 23. 20:50-21:00 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m
sun 4g 18s RSN58 very windy - counting ^{spots} difficult.

W. Mar 23-24 about 00:00 UT
- Received word of David Levy's discovery of
Comet Levy 1988e - in Pegasus - discovered
in the morning sky on Mar 13.

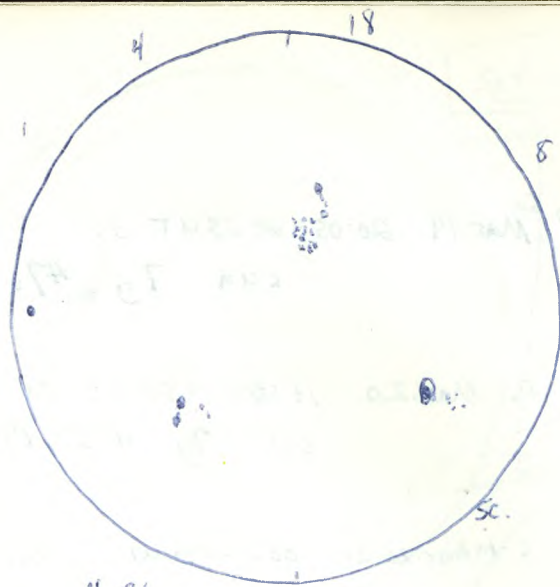
Th. Mar. 24 21:20-21:30 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m
sun 4g 47s RSN87

M. Mar. 28 22:03-22:10 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m
sun 4g 31s RSN71 hazy; some spots may have been missed



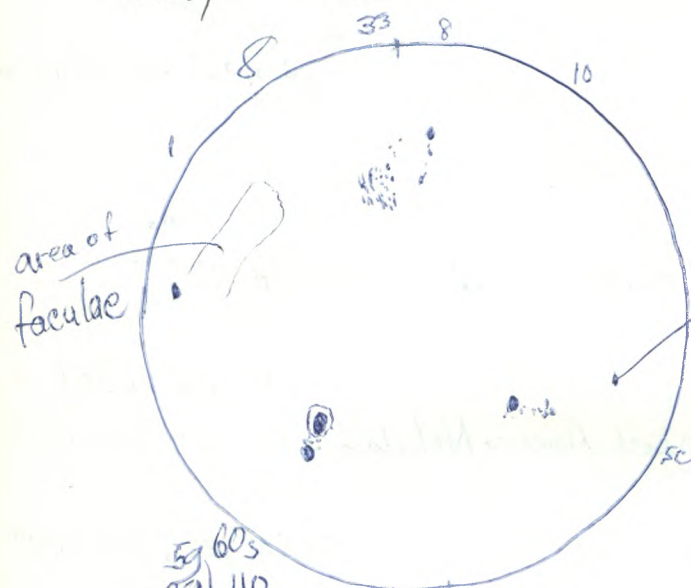
4g47
RSN 87

Mar. 24



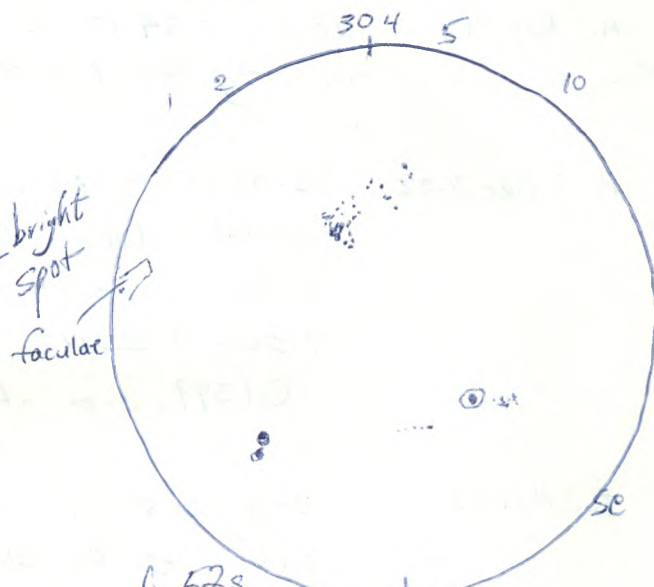
4g31s
RSN 71

Mar. 28



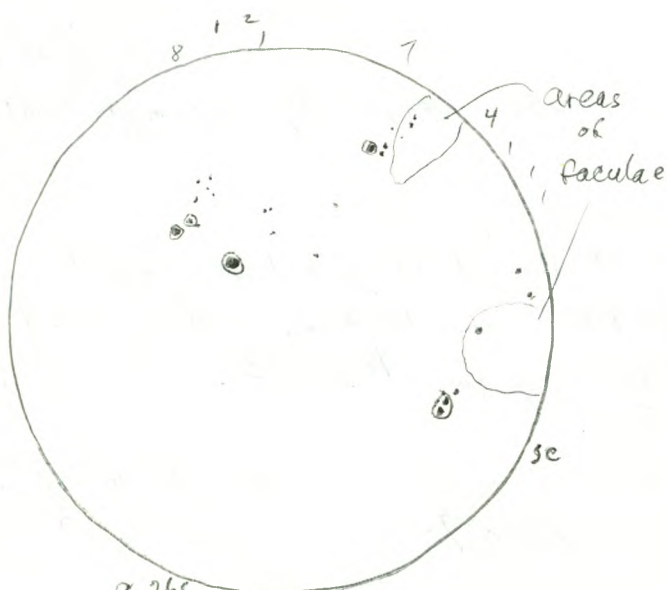
5g60s
RSN 110

Mar. 29



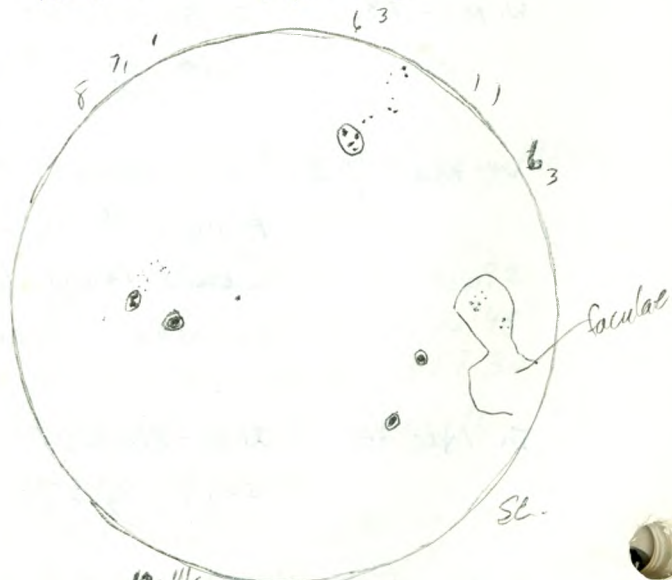
6g52s
RSN 112

Mar. 30



9g26s
RSN 116

Apr. 9



12g41s
RSN 161

Apr. 10

1988 Tu
Mar. 29

21:36-21:42 UT SS
sun 5g 60s RSN 110

C-8, 32^m, 28^m, 20^m, 15.5^m.
one bright spot seen.

W. Mar. 30 20:50-20:58 UT SS
sun 6g 52s RSN 112

C-8, 32^m, 28^m, 20^m, 15.5^m

Sa Apr. 9 20:25-20:30 UT SS
sun 9g 26s RSN 116

C-8, 32^m, 28^m, 20^m, 15.5^m.

Sa-Su Apr. 9-10 02:30-05:30 UT 00 s-8(?) T8-8.5(?) C-14, 32^m E. 2"
M51, M61, NGC 4324, 4281, 4270, 4273, 4268_A (marked on
Uranometria but not on SkyAtlas 2000.0), 4339 - all near M61, M49,
4725, M64, M104 (the Sombrero Nebula in Virgo)

Su Apr. 10 18:45-18:55 UT SS
sun 12g 41s RSN 161
12g 47s

C-8, 32^m, 28^m, 20^m, 15.5^m

Su-M Apr. 10-11 04:00-04:30 UT Y
M44, M35, sweeping

11x80b

M. Apr. 11 21:35-21:40 UT SS
sun 13g 35s RSN 165

C-8, 32^m, 28^m, 20^m, 15.5^m

M-Tu Apr. 11-12 00:30-00:45 Y
-Jupiter (and 3 moons seen) Venus, M42 - inner part of
nebulosity easily seen before end of Astronomical Twilight.

Astroscan, 15^m, 8^m, 5^m

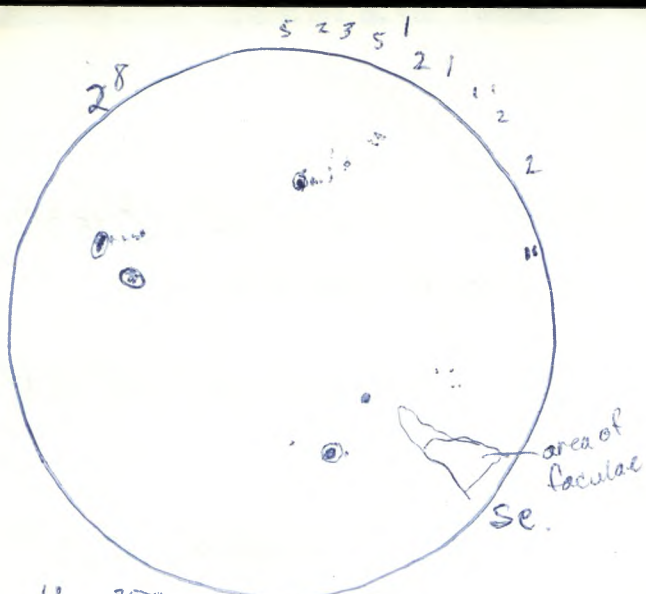
F.-S. Apr. 15-16 02:40-03:45 UT Y
M35, M36, M37, M38, M13, M92, RCor Ber.

s(?) T8½ (light haze)

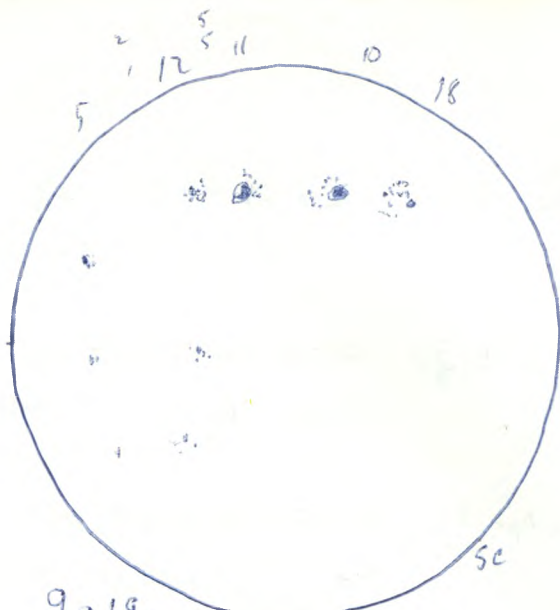
me and 11x80b.

Su. Apr. 17. 22:00-22:05 UT SS
sun 9g 69s RSN 159

C-8, 32^m, 28^m, 20^m, 15.5^m.

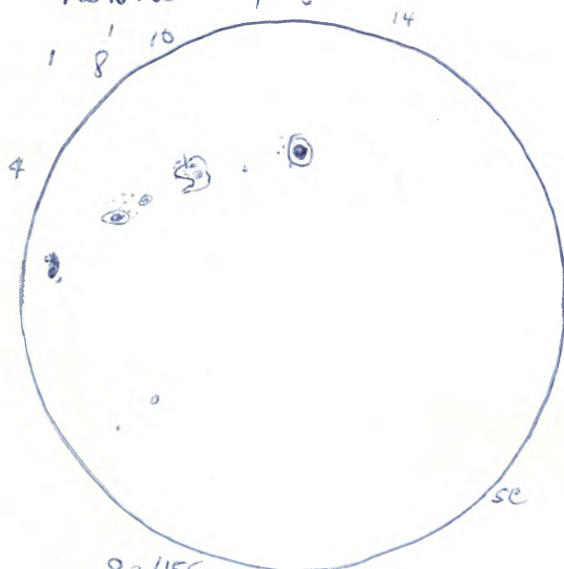


13g 355
RSN 165 Apr. 11
1 6

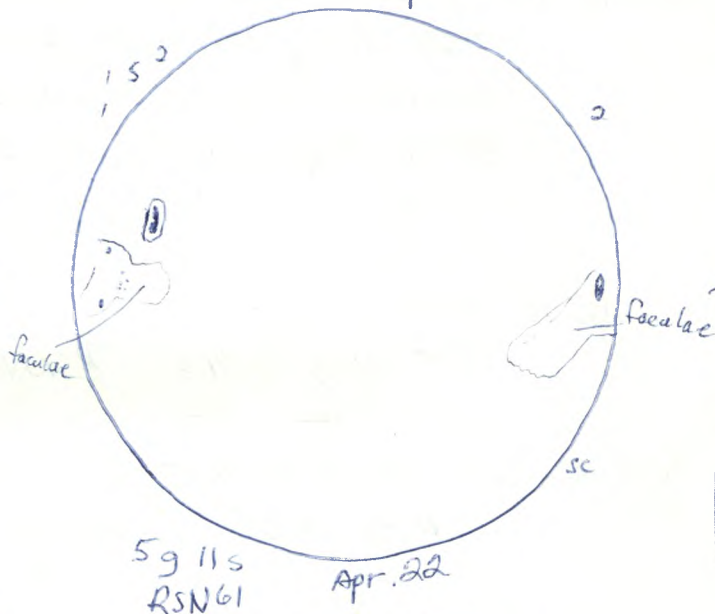


9g 695
RSN 159 Apr. 17.

Apr. 21-22
net
7x35
observation
M13+
stars

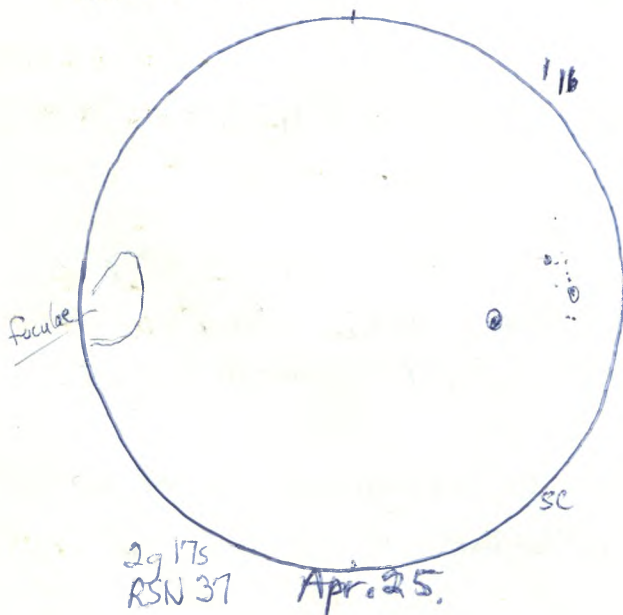


8g 455
RSN 125 Apr. 18

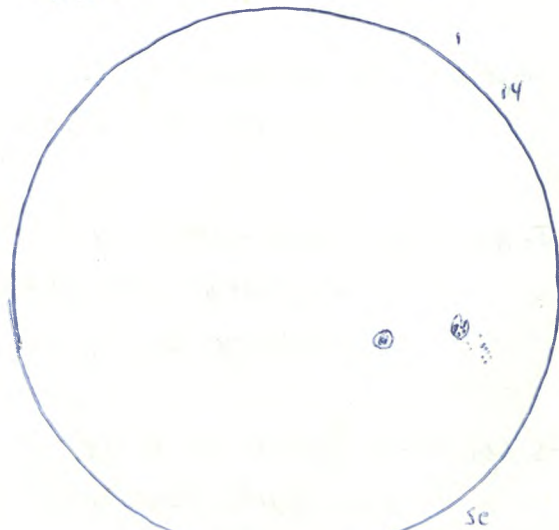


5g 115
RSN 61 Apr. 22

May 4
Venus



2g 175
RSN 37 Apr. 25.



2g 155
RSN 35 Apr. 26

1988 M. Apr. 18 20:05-20:25 UT SS (interrupted by cloud) C-8, 32^m, 28^m, 20^m, 15.5^m
sun 8g 45s RSN 125

F. Apr. 22 20:30-20:40 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 5g 11s RSN 61 faculae observed

M. Apr. 25 20:50-21:00 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 2g 17s RSN 37

Tu. Apr. 26 20:50-21:00 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 2g 15s RSN 35

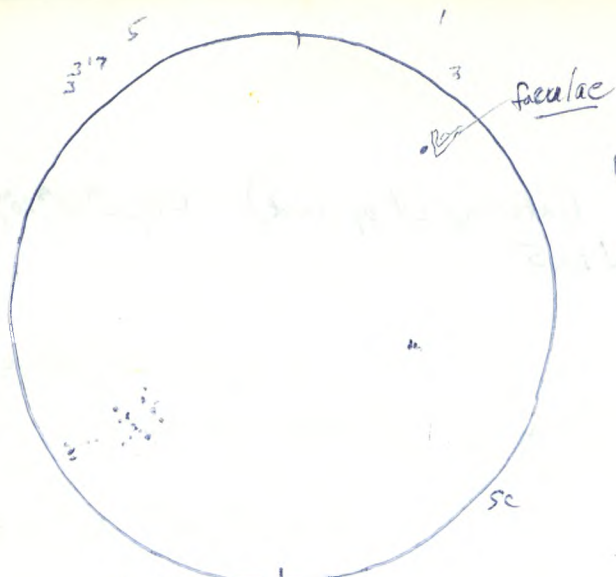
Tu. May 3 21:05-21:12 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 6g 32s RSN 92

Tu-W. May 3-4 00:20-00:25 UT tableatss Astroscan, 15^m, 8^m, Barlow
Venus - crescent phase

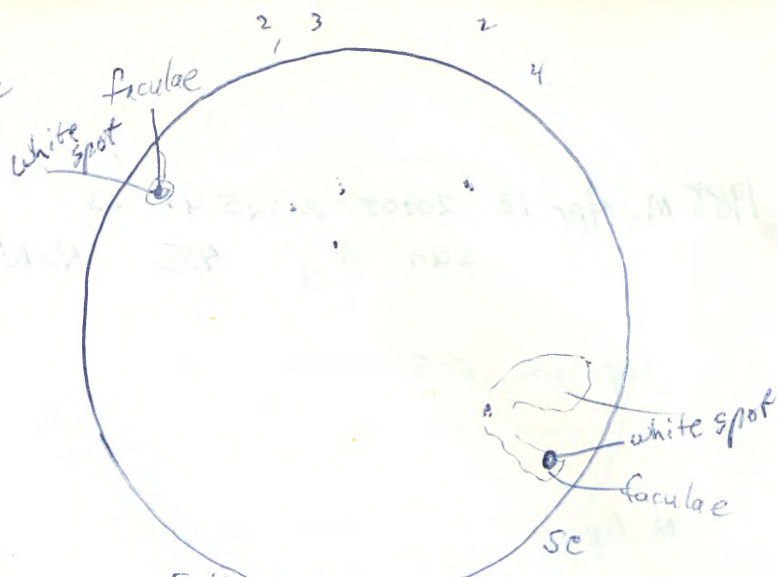
F. May 6 21:25-21:35 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
Sun 5g 12s RSN 62 granulation seen, also white spots

F-S. May 6-7 03:30-04:25 UT yardss S 8(?) T 8.5 11x806; C-8, 32^m König
with 11x80: M10, M12, Comet Killer - tail easily seen ($\pm 10^\circ$)
with C-8: Comet Killer - large coma, bright - mag. about 6, tail
perhaps one degree, wide and spreading out - in Camelopardalis
about 3 times distance between δ and ϵ Cassiopeiae
toward δ , n.e. of γ Cam (RA: 4^h 02^m Dec.: 72° 8'
2000.0 coordinates - from Skyline).
M57.

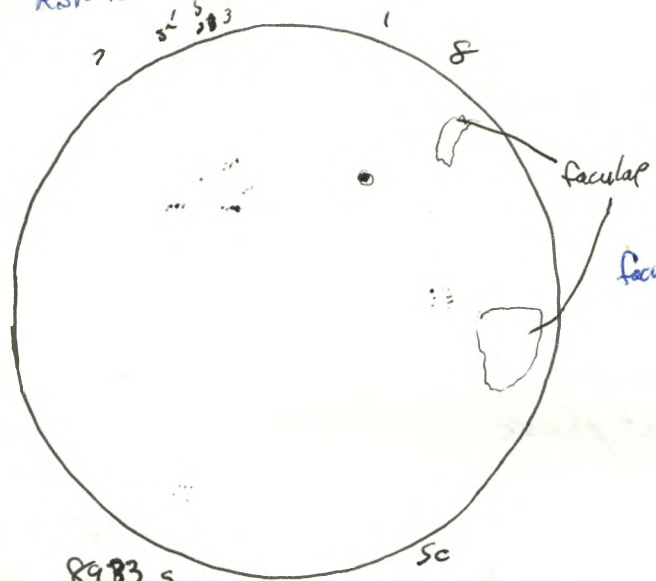
Sa-Su. May 7-8 03:30-06:15 UT oo andy S-7.5(?) T 8.5 11x806, C-14, 32^m 2" E.
with 11x80: Comet Killer - about 6 mag. - tail seen in binoculars.
with C-14: Comet Killer, - tail easily seen - perhaps $\frac{1}{2}$ degree,
M12, M10, M14, M29, M56, M102 (NGC 5866), Saturn,
M13, NGC 6207



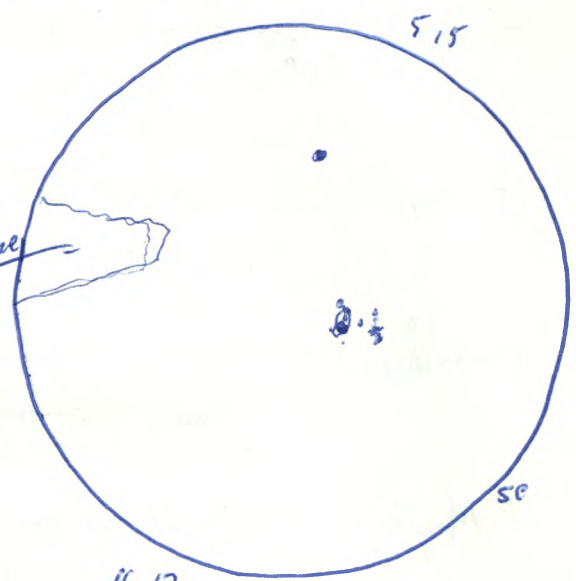
69325
RSN 92
May 3



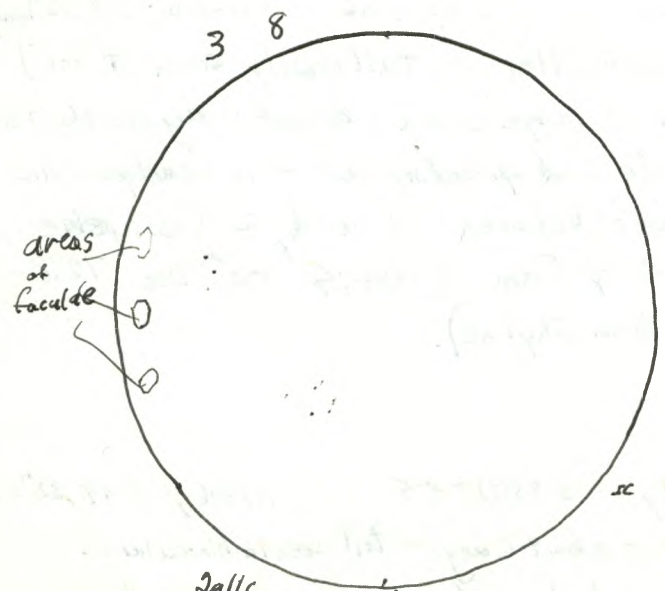
59125
RSN 62
May 6



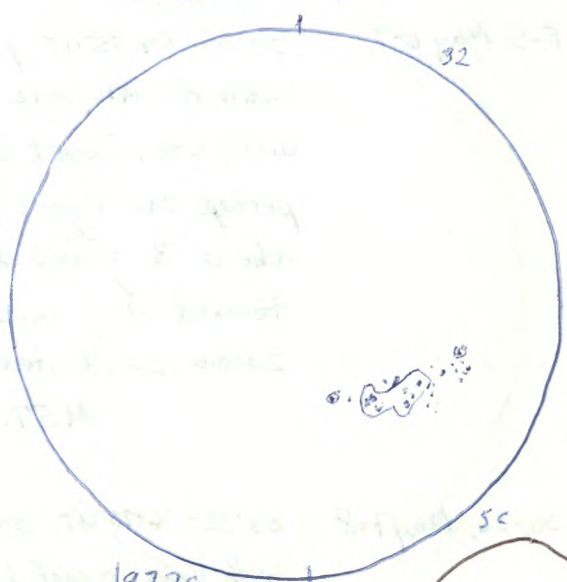
89835
RSN 113
May 8



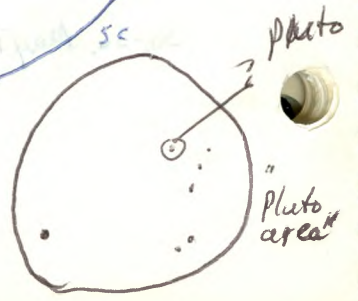
49125
RSN 52
May 10



29115
RSN 31
May 13



19325
RSN 42
May 24



Venus

1988 Sa May 8 17:40-17:50 UT SS
sun 8g 33s RSN 113

C-8, 32", 28", 20" 15.5"

Tu. May 10 20:45-20:50 UT SS

sun 4g 12s RSN 52

Wind hindered careful observing.

C-8, 32", 28", 20" 15.5"

F. May 13 20:57-21:05 UT SS

sun 2g 11s RSN 31

C-8, 32", 28", 20" 15.5"

m.-Tu. May 23-24 00:15-00:20 UT table at SS

Venus - slender crescent, lunar craters.

Astroscaan, 15", 8"

Tu. May 24 20:15-20:25 UT SS

sun 1g 32s RSN 42

C-8, 32", 28", 20" 15.5"

W. May 25 21:45-21:50 UT SS

sun 1g 45s RSN 55

C-8, 32", 28", 20" 15.5"

M. May 30 20:20-20:25 UT SS

sun 8g 60s RSN 140

C-8, 32", 28", 20" 15.5"

Tu. May 31 20:15-20:20 UT SS

sun 8g 45s RSN 125

C-8, 32", 28", 20" 15.5"

Su. June 5 21:00-21:05 UT SS

sun 6g 53s RSN 113

C-8, 32", 28", 20" 15.5"

Sa. June 11 17:35-17:40 UT SS

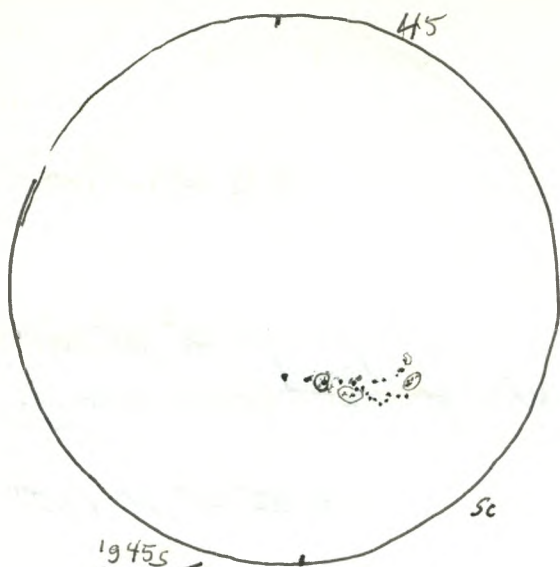
sun 4g 45s RSN 85

C-8, 32", 28", 20" 15.5"

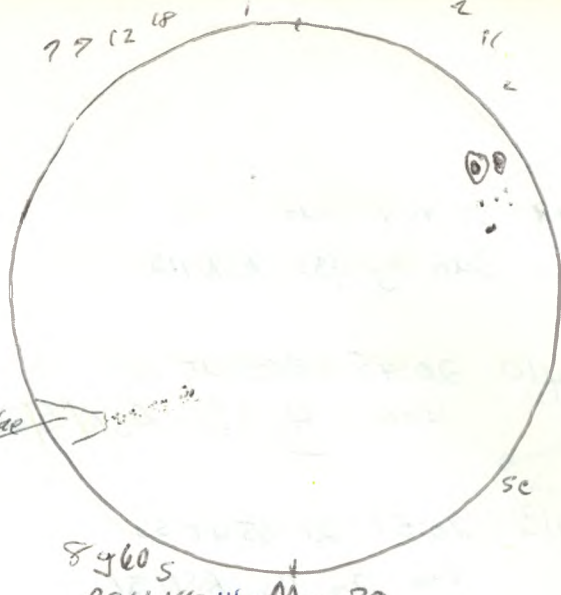
Sa.-Su. June 11-12 03:45-05:50 UT 00 58(?) 78(?)

32" K
C-14, 32" E-2"

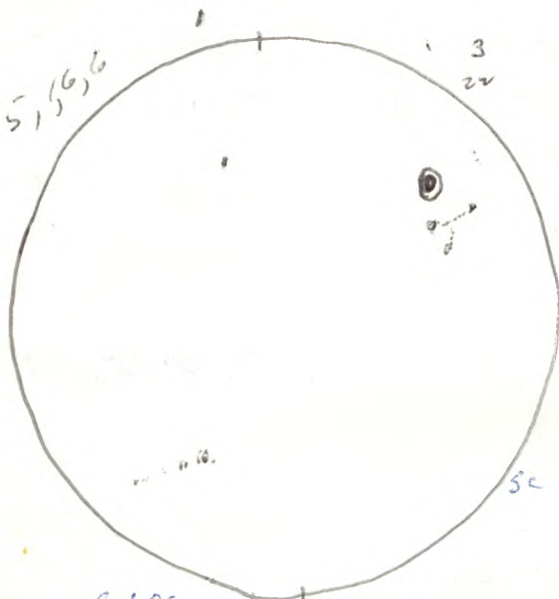
M51, Saturn, Uranus, area of Pluto near 108 Vir.
from map in January 1988 issue of Sky and Telescope,
("thought I saw Pluto to left of 3 stars in a row"), M57



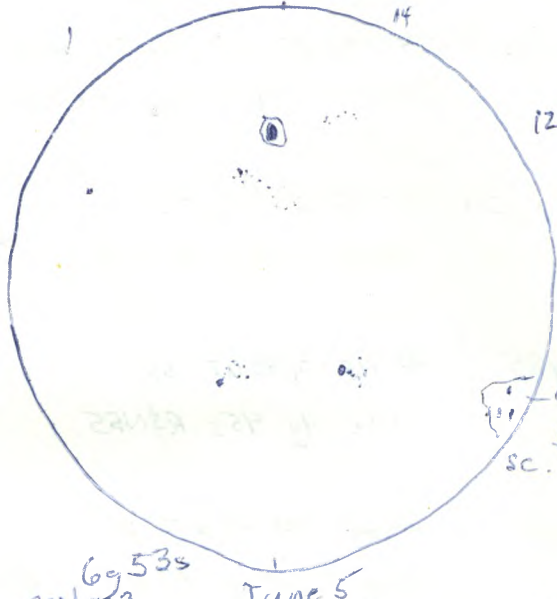
1945s
RSN55
May 25



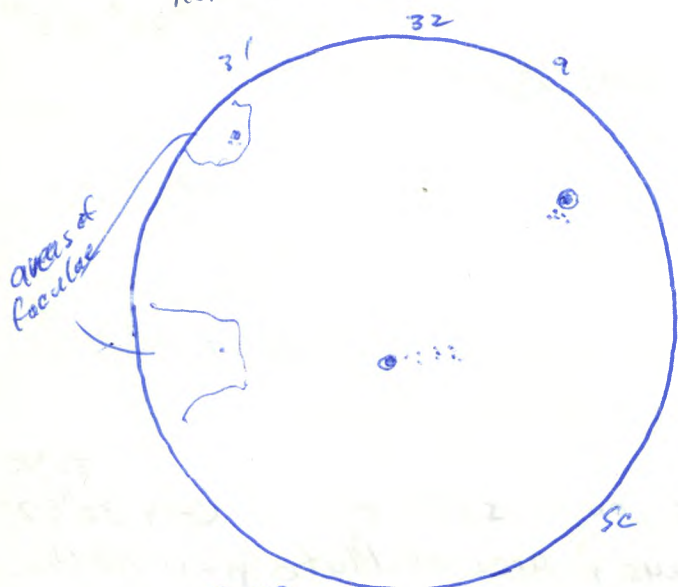
8460s
RSN140
May 30



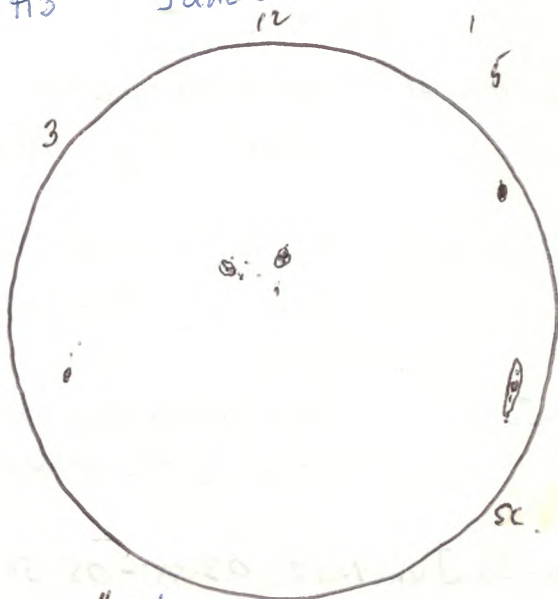
8445s
RSN125
May 31



6953s
RSN113
June 5



4945s
RSN85
June 11



4921s
RSN61
June 14

1988 Tu June 14 19:50-19:55 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 4g 21s RSN 61

W June 15 21:40-21:45 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 4g 29s RSN 69 hazy conditions.

F June 17 20:35-20:40 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 5g 21s RSN 71

F.-S. June 17-18 03:45-06:45 UT 00 S 9.5 T 9 C-14, 32^m
e Herc. (double), M13, NGC 6207, M22, M72, M73, M75,
Mars, M55, M30, Saturn.

M June 27. 19:33-19:40 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 6g 83s RSN 143.

M-T. July 4-5 3:45-4:45 UT y S 9(?) T 9 11x806
M11, M16, M17, M18, M22, M4, M8, Saturn, Uranus,
Neptune(?).

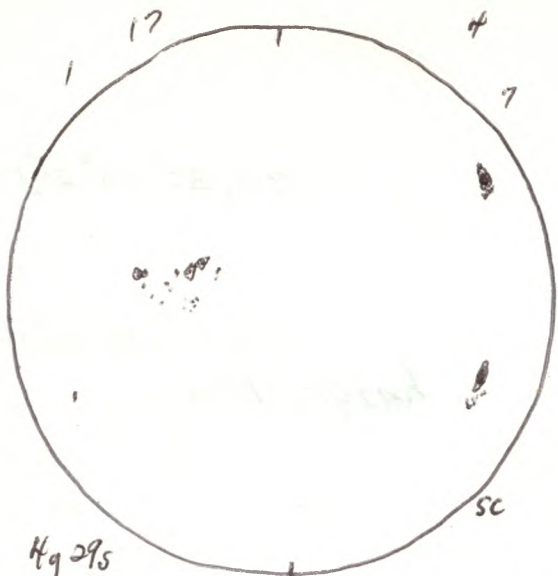
Tu. July 5 20:20-20:25 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 5g 63s RSN 113

W. July 6 20:35-20:40 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun 6g 40 RSN 100

F.-S. July 8-9 3:30-4:30 UT y 11x806.
M11, M26, M16, M17, M18, M24, M22; 2 meteors that may
have been Perseids; Uranus, Neptune (probably)

S.-S. July 9-10 3:30-4:30 UT y 11x806.
M11, M26, M16, M17, M18, M24, M8, M22.

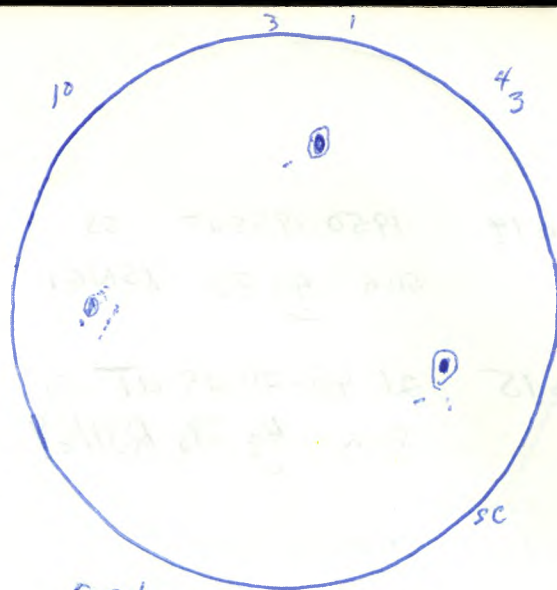
M July 11 July 11 21:45-21:48 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
sun. 4g 52s RSN 92.



Hg 29s
RSN 69

June 15

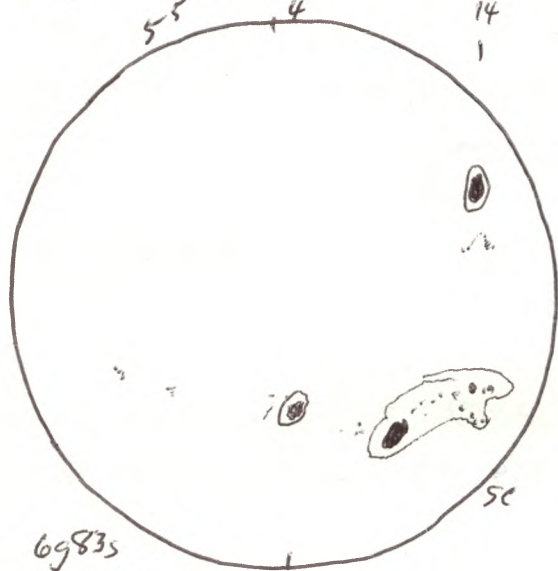
95
14
1



5g 21s
RSN 71

Jan 17

4 10 3



6g 83s
RSN 143

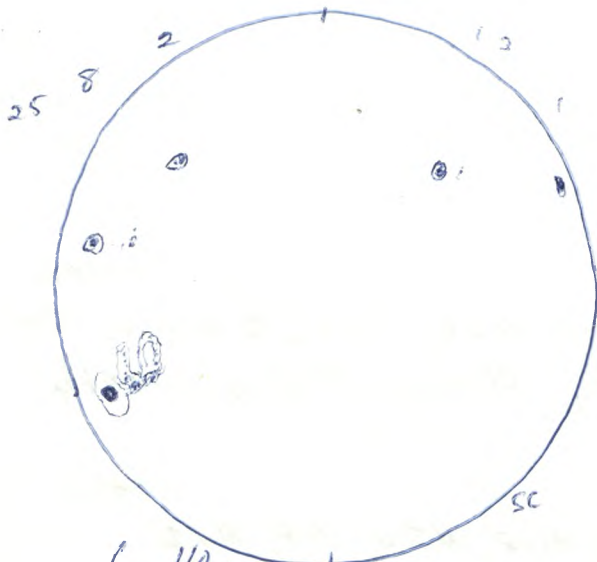
June 27



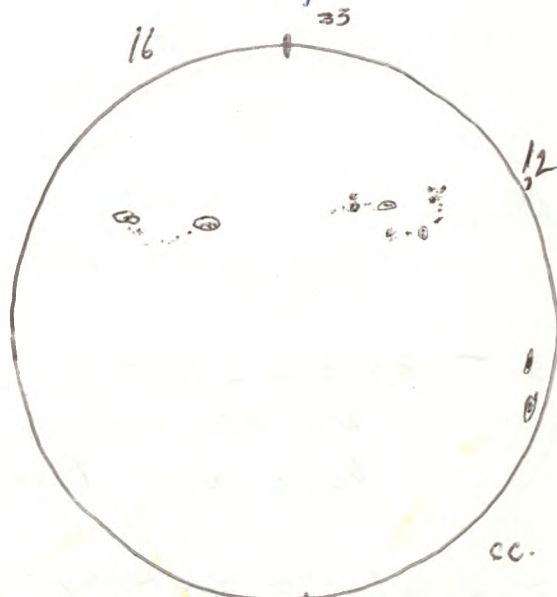
5g 63s
RSN 113

July 5

July 15
- solar
observation
unrecorded



6g 40s
RSN 100 July 6



Hg 52s
RSN July 11

1988th July 12 19:10-19:15 UT SS
sun 69 44s RSN104

C-8, 32^m, 28^m, 20^m, 15.5^m

W-Th July 13-14 3:30-6:00 UT 00

C-14, 32^m, 11x80b.

C-14: M51, Saturn, M57

(- with D. Leuy
and P. Jedicke)

11x80b: M11, M16, M17, M18, M24, M22, M8

Th.-F. July 14-15 01:10-01:40 UT
Pinecrest Island

7x35b

looked for young 28^{hour} moon but did not
see it.

03:30-06:10 UT 00 S-9 T9 C-14, 32^m

Saturn, Uranus, Neptune, M57, Veil Nebula
(observed with D. Leuy and P. Jedicke)

F.-S. July 15-16 02:45-03:30 Darling Hill, Vesper N.Y. partly cloudy 11x80b.

Uranus, Neptune, Saturn as part of the
observing contest at the Syracuse Summer Seminar
(the following night was cloudy with distant
thunder storms.)

M.-T. Aug 8-9 02:30-05:00 Darling Hill near Vesper, N.Y. S-9-T 9.5 very good 16", 2" clava
and others on Mars

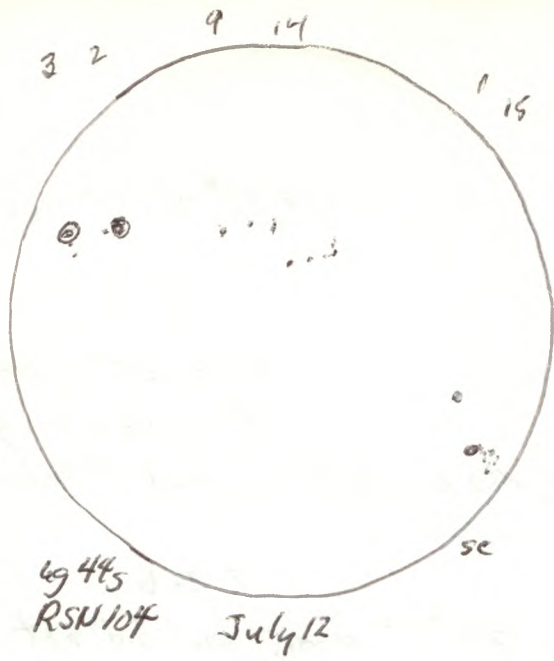
M22, M31, M32, M110, M17 (!) M11, M57,
Twin Globular Clusters in Sagittarius, M8,
M20 (Excellent; lanes very clearly seen), Mars (South Pole cap very clearly seen and some
darkness near the pole cap), M13

T.-W Aug 9-10 01:30-03:00 Outlet Beach in Sandbanks Provincial Park

- not an observing session since the weather
was cloudy

- Instead, it was a talk, slide show and questions
about amateur astronomy and observing.

W-Th Aug. 10-11 - 03:00-03:10 Read S-9(?) T-9.5 next 11x80b
stars of Milky Way, M22 in binoculars



52
22
1
1
2

1988 T-F Aug 11-12 02:30 - 05:30 y S-? T-5 cloud, haze ne
- attempts to observe Perseid Meteors by Denise and me
- interrupted by clouds
- about a dozen or more seen, most of magnitude 3 to 5, some with trails.

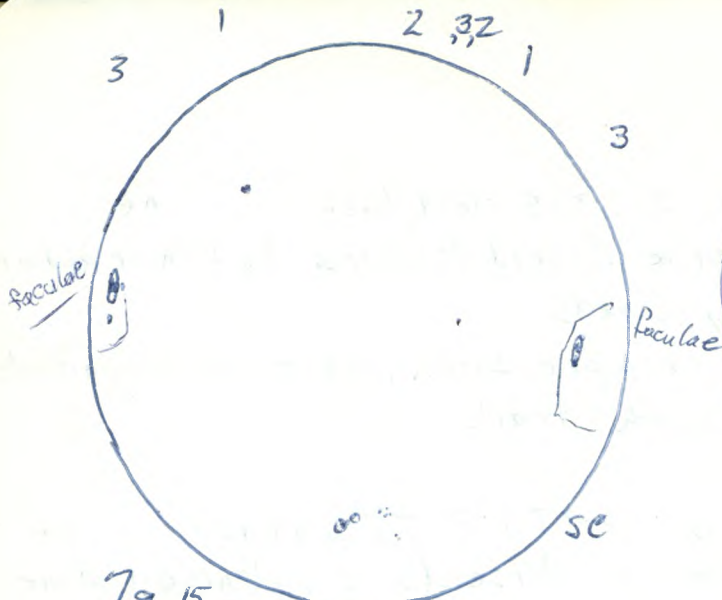
F-S Aug. 12-13 03:30 - 05:00 y S-? T-7.5 ^{Some} cloud & haze ne
- attempts to observe Perseids by Denise and me
- scattered cloud
- over a dozen seen, mainly of magnitude 2 to 6.
- a number of sporadic meteors seen including one of about 0 magnitude at the beginning of the session.

W. Aug 31 21:15 - 21:20 UT SS C-8, 32^m, 28^m, 20^m, 15^m, 5^m
Sun 8g 88s RSN 168

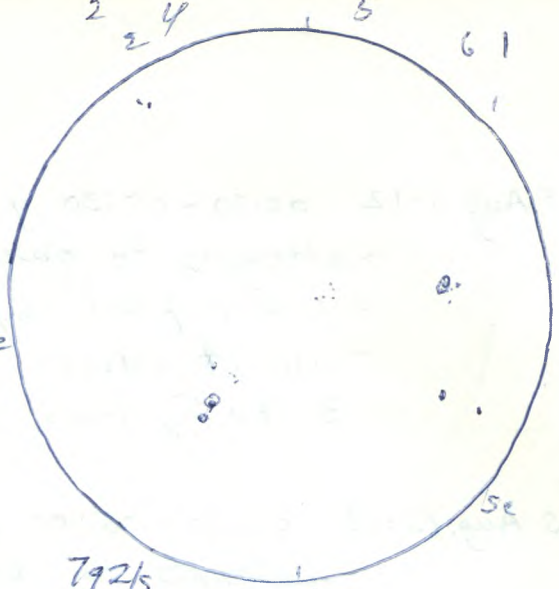
W-Th Aug 31-Sept 1 01:30 - 03:30 UT 00 C-14, 32^m
M31, M57, M13, Saturn, Mars
- observed with Denise, Rhonda Carlo, Colera, and John.

M-T Sept 5-6 02:30 - 04:15 S9 T9.5 Hx806 and Astroscan, 15.5^m, 8^m, 5^m, 4^m
- Hx806: looked for Comet Temple 2 and ferret reported outburst of FK Aquarii at (2000.0) RA 21^h 12.2^m Dec -8° 50' the latter possibly seen faintly, M2, M20 area, M45
- with Astroscan: M13, M15, Mars, others for Mars

W-Th Sept. 7-8 01:30 - 03:30 UT 00 S9 T9 Hx806 and C-14, 32^m TR
Hx806 - looked for Comet Temple 2 and observed the area, may have glimpsed the comet at edge of visibility, M22, M33, M31, Saturn
C-14 - Comet Temple 2 in Ophiuchus, several parts of the Veil Nebula, Mars - very large, being near a favourable opposition.



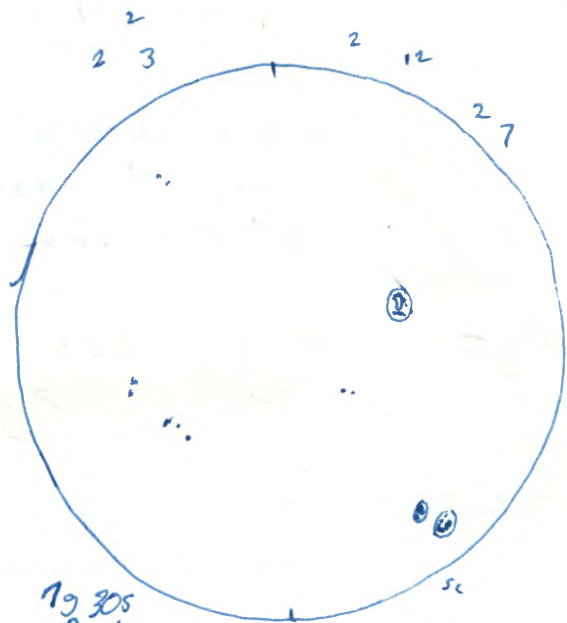
7g 15s
RSN 85. Sept 8



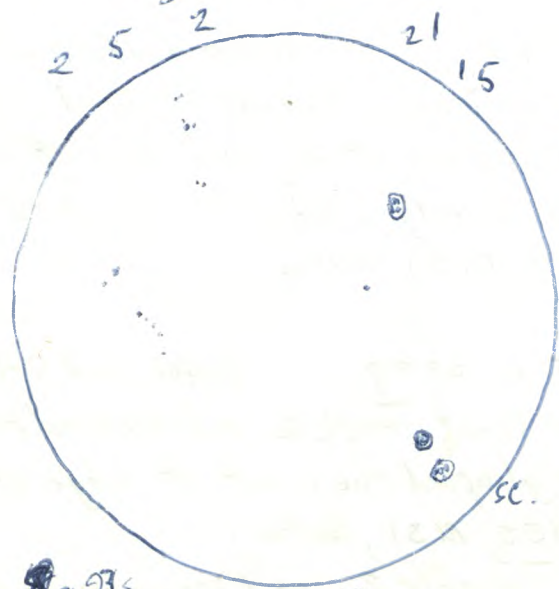
7g 26
RSN 91. Sept. 10



7g 14s
RSN 84 Sept. 11



7g 30s
RSN Sept. 12



8g 23s
RSN 103 Sept. 13.



8g 37s
RSN 117 Sept. 15

Probable
Aurora
S-M Sept. 11-12
00:30UT -
01:30UT
approx.

Mars

1988 Th ^{Sept. 8} 21:20-21:25 UT ss. C-8, 32^m, 28^m, 20^m, 15.5^m
Sun 7g 15s RSN 85 faculae seen

Th-F. Sept. 8-9 01:30-04:30 UT ⁰⁰ SBT8 C-14, 32^m 11x80b
Comet Temple 2, Mars, Veil Nebula - excellent
Ceres

F-S. Sept. 9-10 04:30-05:30 y 11x80b and Astrocam ^{15^m}
L.D. Mars, Jupiter, Pleiades, Ceres.

Sa Sept. 10 19:45-19:50 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m
L.D. Sun 7g 21s RSN 91

Sa-Su Sept. 10-11 00:45-0400 UT 00 s. (2) T8-9 C-14, 32^m and 19^m with Easy Guide
L.D. Comet Temple 2 - appeared fainter than 9.0 mag - perhaps because of haze
Saturn, NGC 6811 Cyg oc, 185 And G, 147 And G,
278 And G, 404 And G, γ And, NGC 891 And G - elongated
and beautiful edge-on galaxy; 890 Tri G, 750 Tri G,
Mars - S pole cap visible and some features.

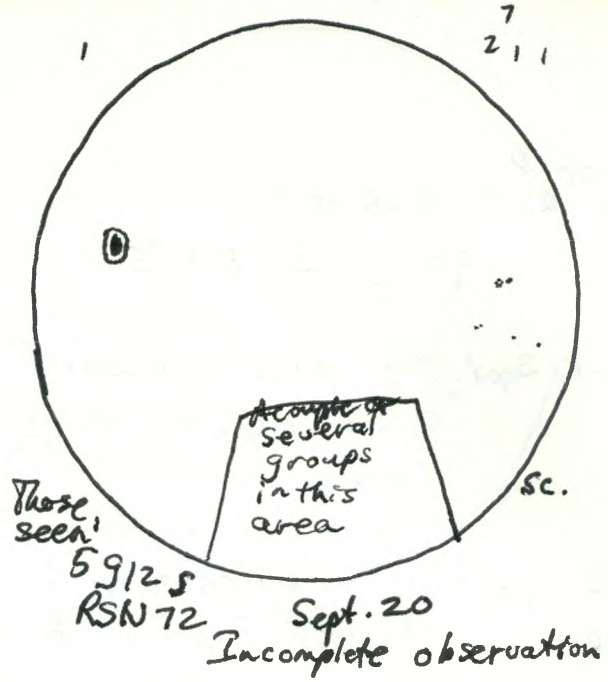
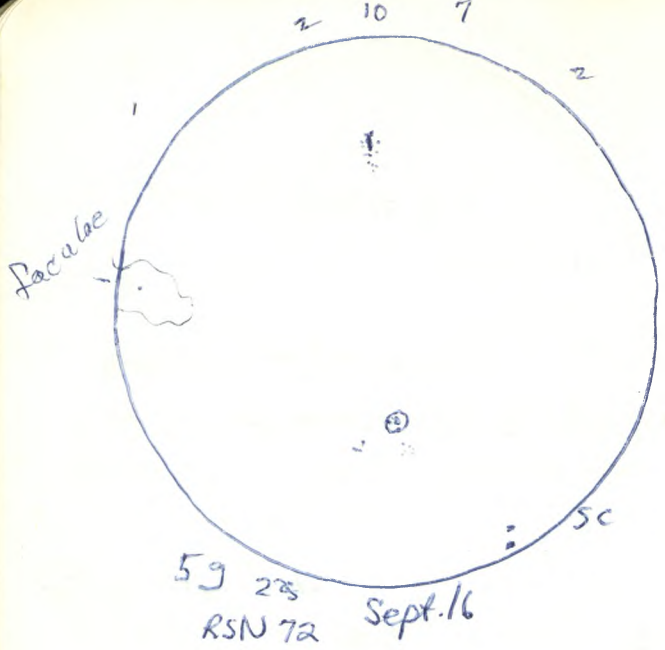
Su Sept. 11 17:30-17:40 UT ss clouds C-8, 32^m
L.D. Sun 7s 14s RSN 84

M Sept. 12 20:45-20:55 UT ss clouds C-8, 32^m, 28^m, 20^m, 15.5^m
Sun 7g 30s RSN 100

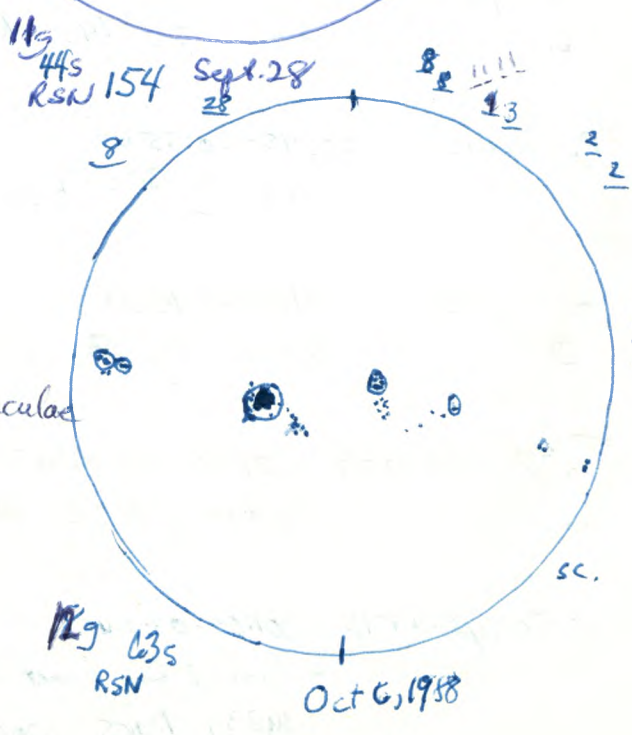
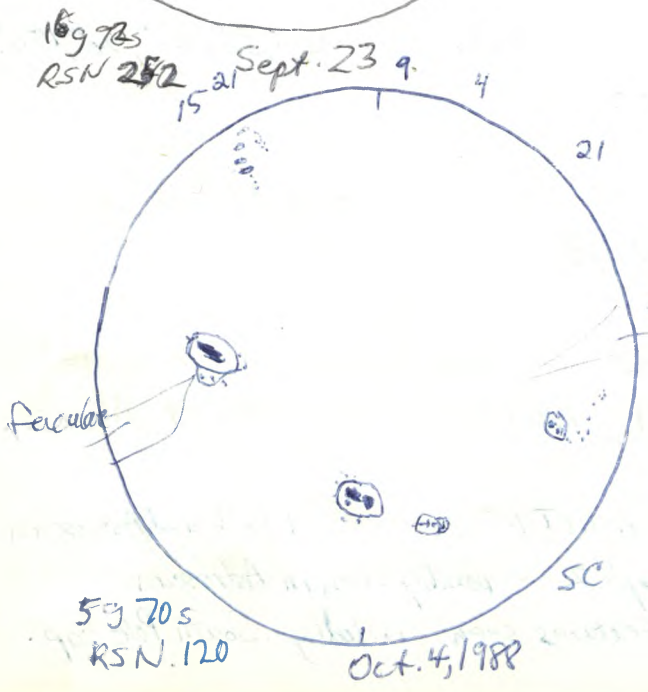
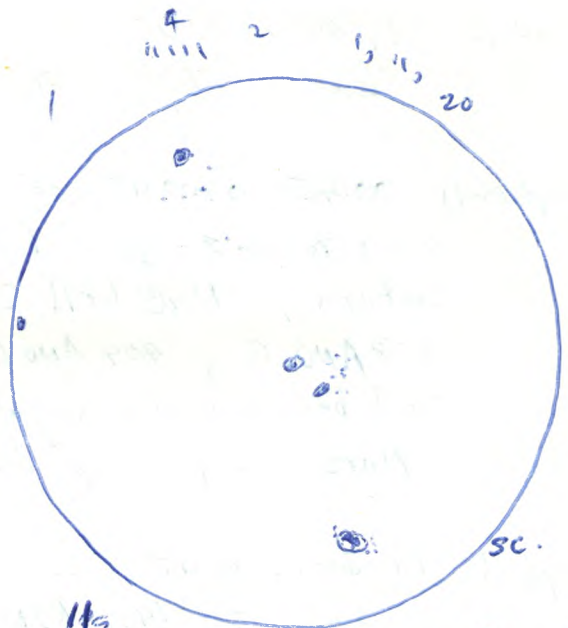
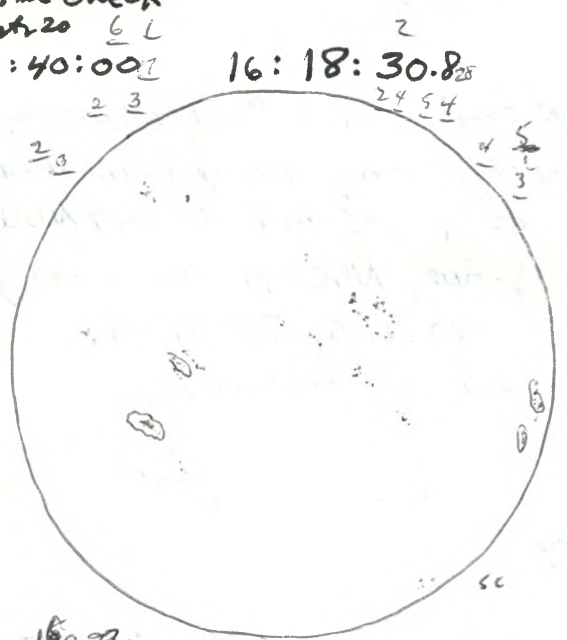
Tu Sept. 13 21:00-21:10 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m
D Sun 8g 23s RSN 103

Th-W Sept. 13-14 01:05-02:40 UT 00 ^{S-8T9} some scattered cloud C-14, 32^m
Saturn, M22, M71, NGC 6802 near C 1399, Mars.

W-Th Sept. 14-15 01:00-03:30 UT S 8.5(T) T9.5 11x80b and Astrocam
- looked for Comet Temple 2 - possibly seen in Astrocam
M33, Mars, some features seen including South Pole cap.



Time check
Sept. 20 6 L
21:40:00



1988 ~~Th~~ Sept. 15 20:30-20:45 UT SS
sun 8g 37s RSN 117

c-8, 32^m, 28^m, 20^m, 15.5^m

Th.-F Sept. 15-16 01:00-03:30 UT SS

c-8, 32^m, 9^m N. for Mars

• looked for Comet Temple 2 - not seen for certain though perhaps seen,
M33, Mars - some features seen including South Pole cap which
was quite distinct.

F. Sept. 16 19:55-20:05 UT SS clouds
sun 5g 22s RSN 72

c-8, 32^m, 28^m, 20^m, 15.5^m

Tu. Sept. 20 20:50-21:00 UT SS

clouds

c-8, 32^m, 28^m, 20^m, 15.5^m

Sun: Incomplete observation because of approaching
cloud cover

Sunspots seen: 5g 12s RSN 72 However, there
were a couple or several groups in the area
that was not thoroughly observed.

F. Sept. 23 20:30-20:40 UT SS
sun 16g 92s RSN 252

c-8, 32^m, 28^m, 20^m, 15.5^m

W. Sept. 28 21:09-21:12 UT SS
sun 11g 44s RSN 154

c-8, 32^m, 28^m, 20^m, 15.5^m

F.-S. Sept. 30-Oct. 1 04:30-05:30 UT CO ^{considerable drawing} ^{13th Nagler and}
^{some haze} c-14, 32^m, 9^m ^{Nagler}

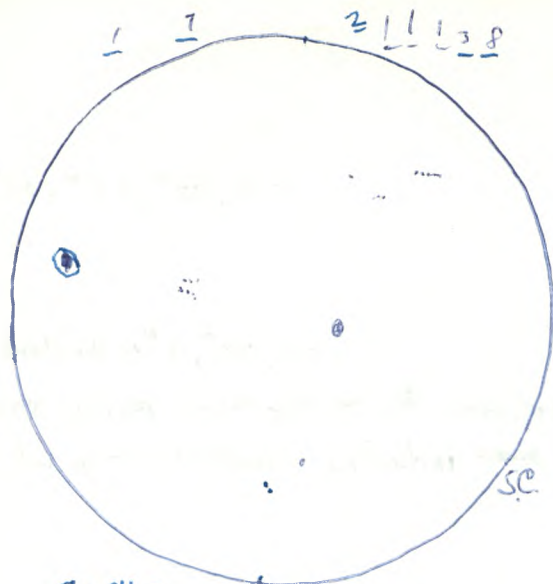
- Jupiter (considerable detail), Mars - very
large and with considerable detail - seen 3
days after opposition,
- lunar features on moon near last quarter

Tu. Oct. 4 20:30-20:35 UT SS
sun 5g 70s RSN 120

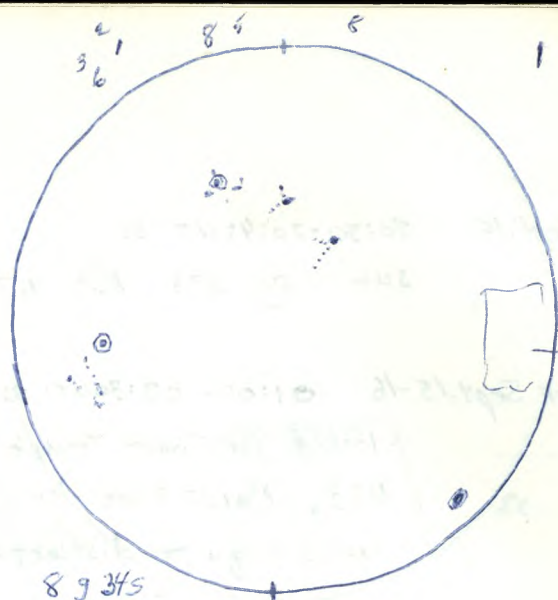
c-8, 32^m, 28^m, 20^m, 15.5^m

Th. Oct. 6 20:45-21:00 UT SS
sun 8g 63s RSN 183

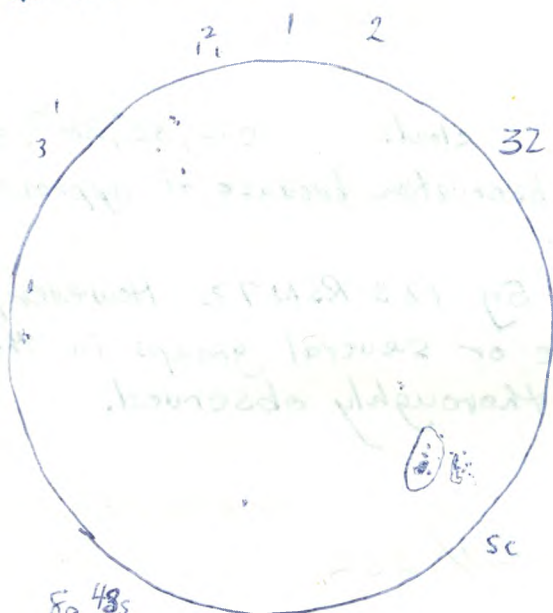
c-8, 32^m, 28^m, 20^m, 15.5^m



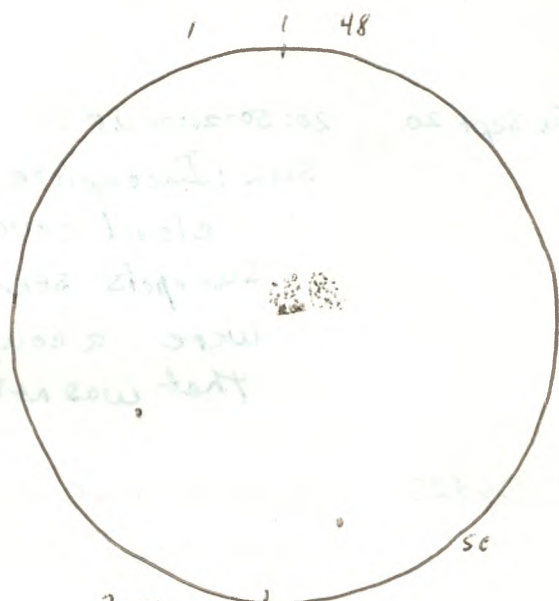
8924s
RSN104 Oct 13



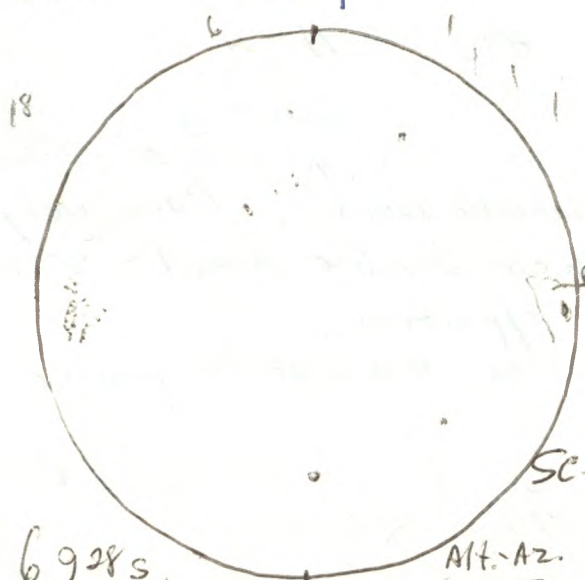
8934s
RSN114 Oct 16



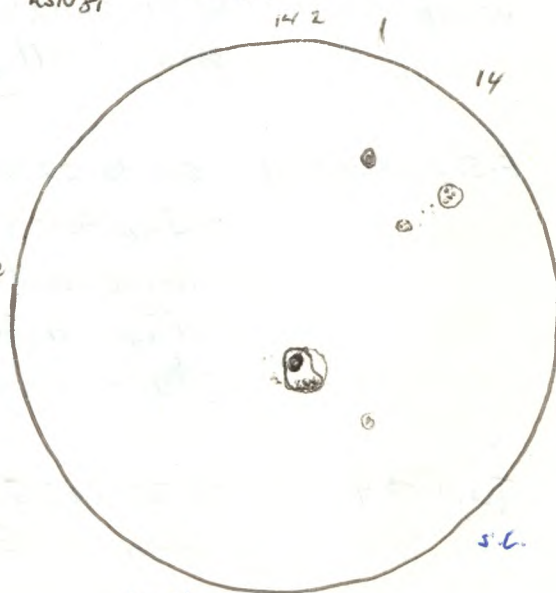
8948s
RSN123 Oct 19



3951s
RSN81 Oct 23



6928s
RSN88 Oct 28 Alt-Az.



4931s
RSN71 Nov 3

1988 F-s Oct 7-8 04:30-06:30 UT 00

c-14, 32^m (East/Guide)

Mars, Jupiter, M31, M33, NGC 891, γ And.

Th. Oct 13 21:15-21:20 n. deck

c-8, 32^m

sun 8g 24s RSN 104

Su Oct. 16 16:30-16:35 UT ss

c-8, 32^m, ~~28^m, 20^m, 15.5^m~~

sun 8g

74s

RSN 114

guest observer:

John W. Ciesse, III

W. Oct. 19 20:50-20:58 UT ss

c-8, 32^m, 28^m, 20^m, 15.5^m

sun 8g 43s RSN 123

W-Th. Oct. 19-20 23:45-00:15 UT ss

c-8, 19^m

Mars, Saturn and Titan, lunar craters including Copernicus, M13.

Oct 20

21^m EDST.

Check Jupiter

and Callisto

Yes, Callisto was crossing above the planet.

Th.-F. Oct. 20-21 23:25-00:25 UT ss.

S9.5T7 (Moon) c-8, 12^m, 19^m

Saturn, Titan; Mars (Excellent! Dark features and S. Pole easily seen!) M13, M57, γ And, α Her, Polaris, (Doubles), β Cyg

Su Oct. 23

20:30-20:35 UT ss

hozy cloud

c-8, 32^m, 28^m, 20^m, 15.5^m

sun 3g 51s RSN 81

F. Oct. 28

20:45-20:55 UT table at ss

clouds moving over sun

c-8, 32^m

sun 6g 28s RSN 88

S-M. Oct. 30-31 00:30-01:20 UT γ and table at ss

S9(7)T9 11K806 and Astracae

Mars, Jupiter, Pleiades, M31, M33, Polaris, γ Andromedae.

Th. Nov. 3

21:00-21:03 UT table at ss

c-8, 32^m

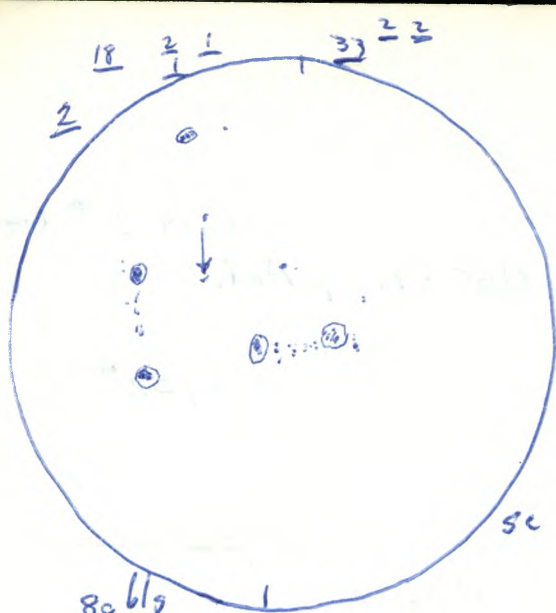
sun 4g 31s RSN 71

Th.-F. Nov 3-4 about 00:05 UT road w. of house

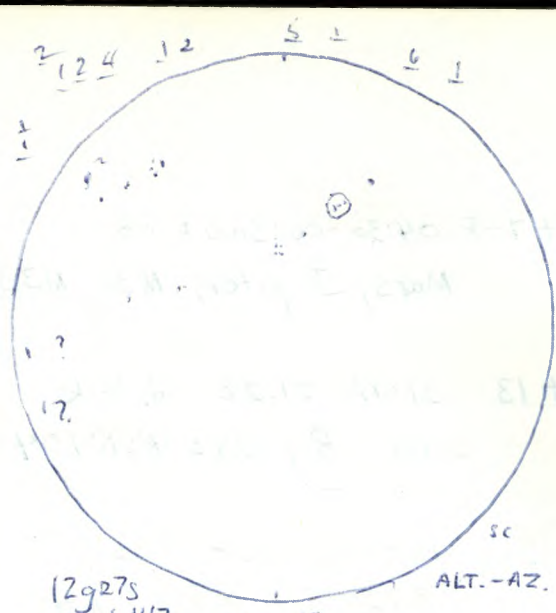
S(8)T9.5

ne

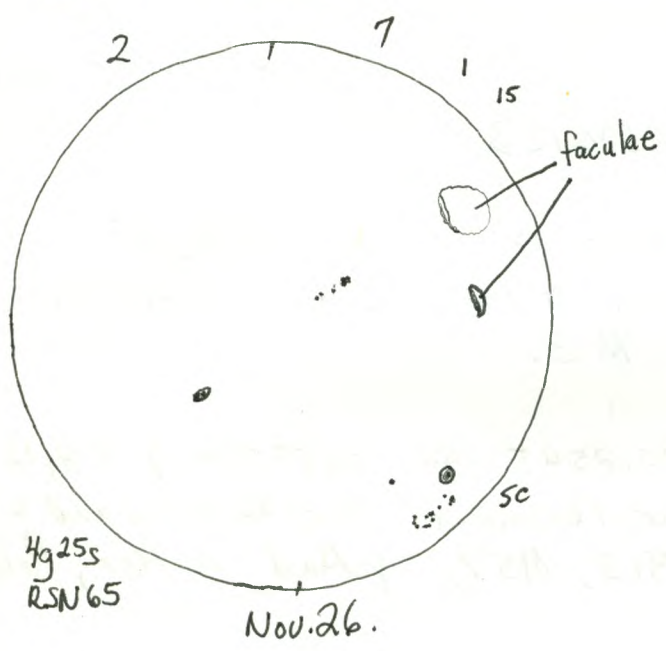
a very bright meteor (a bolide)



89619
RSN 141
Nov. 6



129275
RSN 147
Nov. 18
ALT.-AZ.



49255
RSN 65
Nov. 26.



1988

of about magnitude -6 to -8, crossing the sky from east to west crossing the Milky Way north of Delphinus and Sagitta and going west into Ophiuchus. After crossing the Milky Way, it appeared to break into two pieces. It appeared to leave a train for about $2\frac{1}{2}$ minutes.

Su. Nov. 6. 19:40-19:45 UT ss c-8, 32^mk.
sun 8g 61s RSN 141

M.-T. Nov. 7-8 00:50-01:30 UT 00 59(?) T 9 (later clouds) C-14, 12^m, 32^m
- Jupiter (during shadow transit of Io) clearly seen.
- Mars (S. Pole and some features seen)
- Pleiades.
- at 01:15 UT - a bright (mag -2.5) Taurid meteor in southern and south-western sky.

11 entries
6 sun.

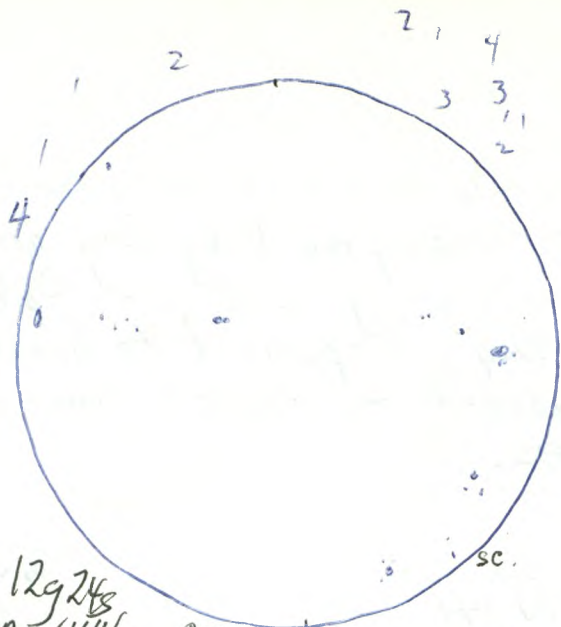
M.-T. Nov. 14-15 at Onfrichuck
01:45-03:30 UT home on Bob's Lake S(?) T 9.5 ^{some cloud} Astroscan, 19^m, 8^m
Jupiter with Callisto slightly above and to one side, just having crossed without having transitted, and Io about to transit, Mars, M33, M42, M36, M37, M38, M1, M45.

F. Nov. 18 20:45-20:50 UT North Step Alt. Az c-8, 32^m
sun 12g 27s RSN 147

F.-S. Nov. 25-26 04:00-04:35 UT table at ss C-8, 19^m, 9^m
Jupiter (shortly after eclipse reappearance of Europa), Mars, M42 and Trapezium.

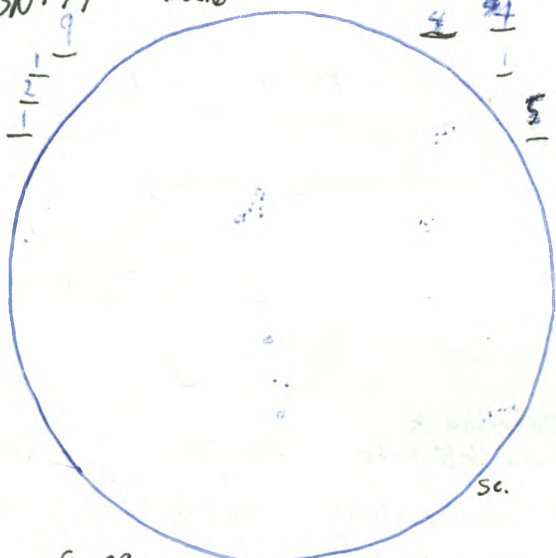
Sa. Nov 26 17:06-17:10 UT ss c-8, 32^m, 28^m, 20^m, 15.5^m
sun 4g 25s RSN 65

S.-M Dec 4-5 01:30-02:30 UT yard table at ss 11x80b and Astroscan, 15^m
Astroscan: Jupiter about time of transit egress of Europa, Mars, Trapezium
11x80b: Newly Suspected Variable Star (NSV 3005) near



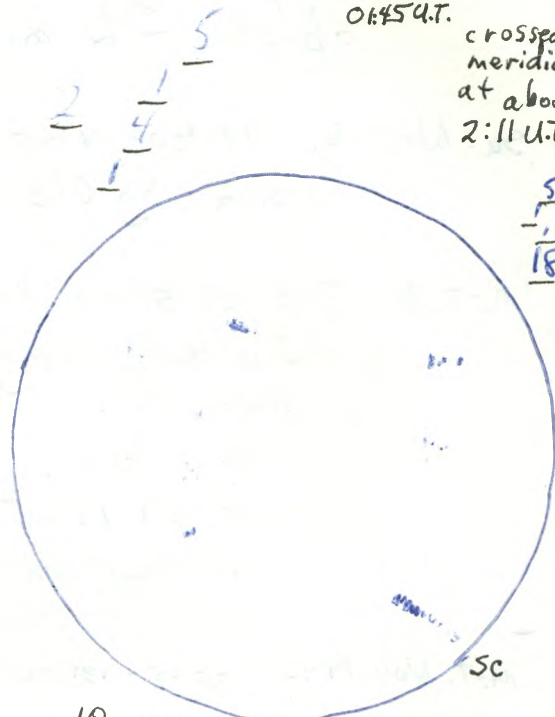
129 248
RSN 144

Dec. 6



99 295
RSN 119

Dec. 10



109 445
RSN

Dec. 11

Jupiter
Dec. 8-9



0:45 U.T.



02:50 U.T.

crossed
meridian
at about
2:11 U.T.

	Beautiful Sep	Doubles "	PA	Bunker, page
(Almach)	10	"	63°	113
(Mesarthim)	7.8	"	141°	249
σ Ori	A+B	0.25"		1316
	C	11.2"	236°	1310
	D	129"	84°	1310
	E	42"	61°	1310
λ Ori	4.4	"		

1988

star γ Gem (Gamma Geminorum) (See Sky and Telescope
December 1988, page 662)

Tu. Dec 6 20:00-20:10 UT ss c-8, 32^mK
sun 12g 24s RSN 144 (many small spots)

Th.-F. Dec. 8-9 01:45-02:50 UT γ and ss s9T9 (increasing cloud) c-8, 12^mK, 9; 11x80b

Jupiter: Great Red Spot Hollow easily seen
- large N. Equatorial Band
- movement of G.R.S. Hollow followed across the Meridian
- dark area in S. Equatorial Band preceding the Great Red Spot Hollow.

with 11x80b: M42, area in Cygnus near M39
naked eye: Mira (O Ceti) near its maximum brightness.

F.-S. Dec. 9-10. 04:30-05:40 UT γ s8(?)T9 increasing Cloud 11x80b.
M42, M36, M37, M38, Mira, Jupiter, M39 and area, M45,
NSV 3005.

Sa Dec. 10 16:30-16:40 UT ss. c-8, 32^m
sun 9g 29s RSN 119

Sa.-Su Dec. 10-11 01:45-02:45 UT ^{9th Concession} north of Reed s-8(?)T10(!) 11x80b.
M36, M37, M38, M39 area, M42, M33, M31, M45, Rlep area,
NSV 3005, Double Cluster (ne), area of λ Ori, Alcor, Mizar.

Su. Dec. 11 20:00-20:08 UT ss. c-8, 32^m
sun 10g 44s RSN 144

S.-M. Dec. 11-12 02:00-04:00 UT γ + ss. s8.5T9.5 11x80b and c-8, 9^m, 10^m
with 11x80b: NSV 3005, M42, area of Rlep.
with c-8, Jupiter - beginning of Shadow Transit of Europa
detected at about 02:12³ UT (listed for 02:10 UT); Mars
Trapezium, γ And, γ Arietis, σ Orionis, λ Orionis.
- at least 3 or 4 Geminid Meteors seen.

Relative Sunspot Numbers

1986 Recorded A.A.U.S.O. Brussels.

Feb. 22	0	0	7	May 14	23	14	13	Aug 1	65	65	45
23	0	0	0	21	46	35	41	3	44	38	39
24	0	0	0	22	32	34	35	5	40	29	31
26	11	11	14	25	57	35	37	6	38	34	32
27	11	10	19	29	30	14	12	10	62	44	47
Mar. 5	26	23	24	June 2	0	11	11	11	54	52	56
9	13	13	14	6	0	0	0	12	56	45	48
10	11	10	11	10	0	0	0	18	57	45	43
12	0	0	0	12	0	23	21	20	69	52	51
13	0	0	0	14	0	9	10	21	47	49	48
14	11	9	11	15	0	10	9	22	47	32	34
16	11	13	11	16	0	11	12	23	40	37	39
17	32	21	22	17	14	20	15	24	38	36	35
18	44	18	21	18	12	24	24	25	34	36	35
19	0	10	12	19	16	15	13	26	30	34	34
23	45	18	16	23	40	37	38	Sept. 2	46	37	38
24	22	13	23	25	41	39	38	3	45	39	37
Apr. 7	62	67	56	28	39	35	41	4	49	38	38
9	114	69	69	30	0	17	16	14	20	18	18
11	107	86	80	July 8	22	11	12	15	21	15	21
12	88	74	77	9	23	13	13	24	12	21	25
13	95	71	79	11	0	0	0	27	22	19	19
17	37	38	41	12	0	0	0	28	22	20	22
20	0	10	16	13	0	0	0	Oct. 1	18	35	34
22	11	24	26	15	14	0	11	5	53	47	48
24	25	26	35	16	15	12	17	8	15	47	55
30	24	33	30	17	16	13	12	13	105	66	74
May 2	25	32	40	20	88	47	33	14	11	86	92
3	23	22	22	21	95	71	67	21	41	58	61
4	23	20	23	22	116	98	87	22	47	45	50
5	27	23	22	27	71	77	77	23	0	30	33
8	43	21	25	29	88	61	60	26	52	35	40
12	26	21	19	30	108	78	62	28	60	73	79
13	22	16	22					31	49	61	78

Date	Recorded#	AA.U.S.A.	Brussels
Nov. 16	45	37	33
Dec. 30	40	37	42
1988 Jan. 8	12(?)		
9	67		
10	86		
13	79		
22	50		
27	64		
Feb. 2	59	69	68
8	59	44	46
10	23	36	38
16	47	30	42
23	11	11	12
28	50	47	40
Mar. 1	75	71	68
5	66	67	59
6	50	60	61
7	50	69	65
10	38	40	36
11	35	20	20
19	117	102	105
20	115	86	85
21	74	81	81
22	90	78	76
23	58	81	74
24	87	90	83
28	71	106	109
29	110	107	104
30	112	107	108
Apr. 9	116	105	115
10	161	109	107
11	165	127	115
17	159	136	144
18	125	133	137
22	61	66	72
25	37	50	44
26	35	49	44
May 3	92	80	76
6	62	71	77
8	113	65	63
10	52	92	87
13	31	57	44
24	42	56	47
25	55	58	57
30	140	90	83
31	135	90	86

June 5	113	124	114
11	85	105	108
14	61	57	53
15	69	77	65
17	71	80	76
27	143	129	111
July 5	113	113	119
6	100	96	103
11	92	93	95
12	104	96	100
Aug. 31	168	138	151
Sept. 8	85	90	88
10	91	90	76
11	84	95	87
12	100	91	83
13	103	92	91
15	117	103	89
16	72	120	97
20	INC.	137	153
23	252	179	190
28	154	140	148
Oct. 4	120		
6	183		
13	104		
16	114		
19	123		
23	81		
28	88		
Nov. 3	71		
6	141		
18	147		
26	65		
Dec. 6	144		
10	119		
11	144		

Magnification
in

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