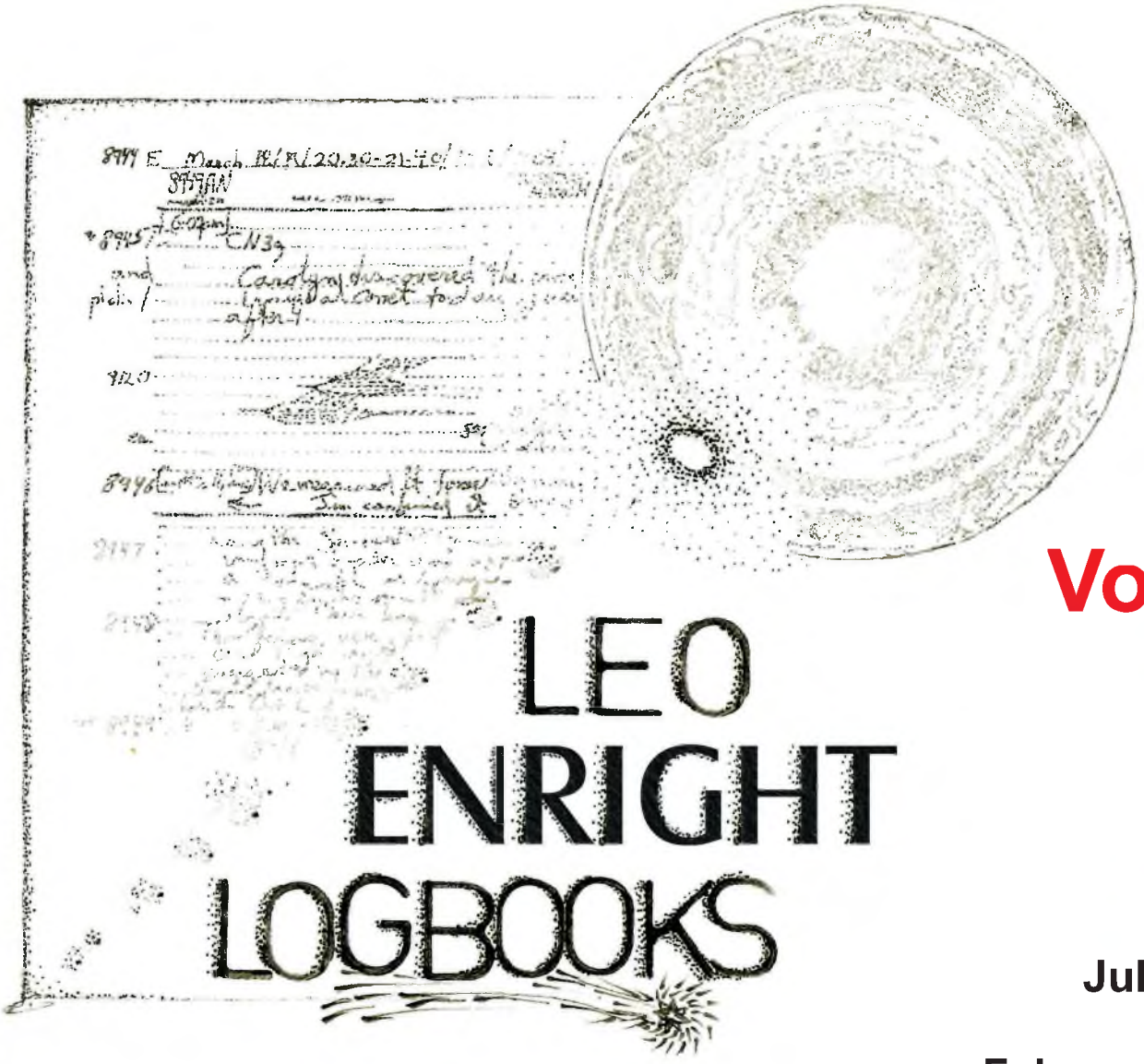


LEO ENRIGHT LOGBOOKS

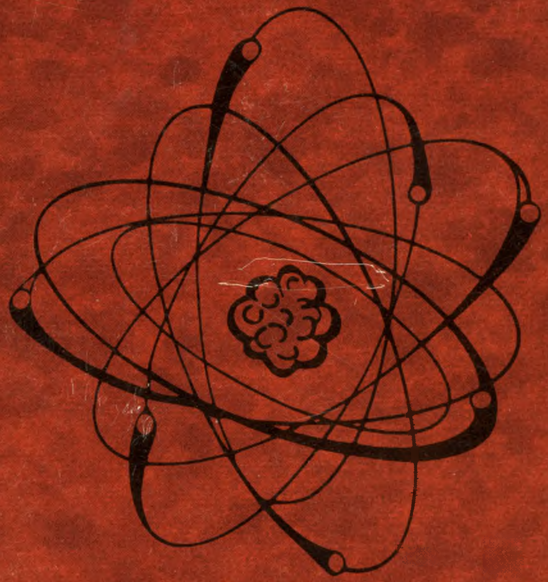
Volume 3

July 12, 1985
to
February 21, 1987

Hilroy

3.

65800 13210



heavyweight paper - papier épais

science note book
cahier de sciences

name-nom LEO ENRIGHT

subject-sujet OBSERVING LOG   July 1985 - Feb 21, [illegible]

100 pages
27.6 x 21.3 cm
no 13-210

HILROY Toronto M6E 2R9
Made in Canada • Fabriqué au Canada

B14

Date 0^h U.T.
Oct. 1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

For 1985

seen naked eye good tail in telescope
n naked eye
on
il in telescope.
seen in morning at about
twilight with 2° tail.
ey 2.5 bright and low in
ky – clouds (1.5° tail seen)
nis, near at naked-eye visibility
degrees – in Astroscan
with 11×80 binoculars
t definitely seen.
ulars in clear sky
irrus clouds
Centre telescope at Fort Henry. Kingston.

Aug 27-28.
Please ...

...13 + nearby galaxy

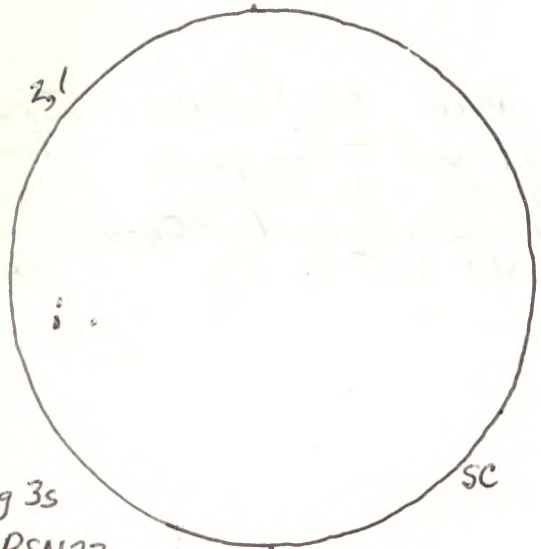
OBSERVING LOG

Code:

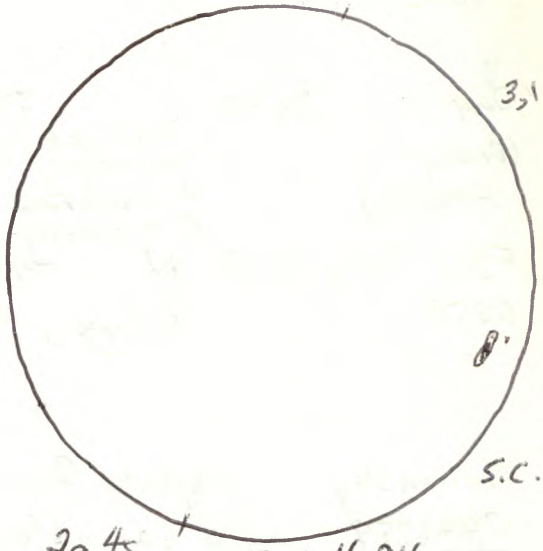
Year	Day (Friday-Saturday)	Date	Time (N = night, M = morning, A = afternoon, E = evening; Universal Time) hours and minutes	Place (o.o. f.s.)	Sky Condition (T = Transparency, S = Seeing, Scale: 1–10 good)	Instrument Used (Telescope or binoculars)
1985	FS	July 12-13	N — 4:15 - 15:15 U.T.	Y	T 8 S 7	11x80
	6259		χ Cyg, M13, M11			

Julian Day
2446259

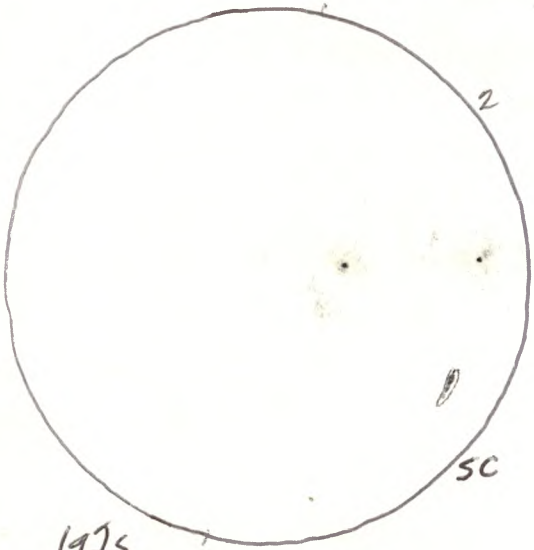
Objects Observed
(a variable star
and a ~~Nebula~~ globular cluster
and famous open cluster)
v = variable
d = double



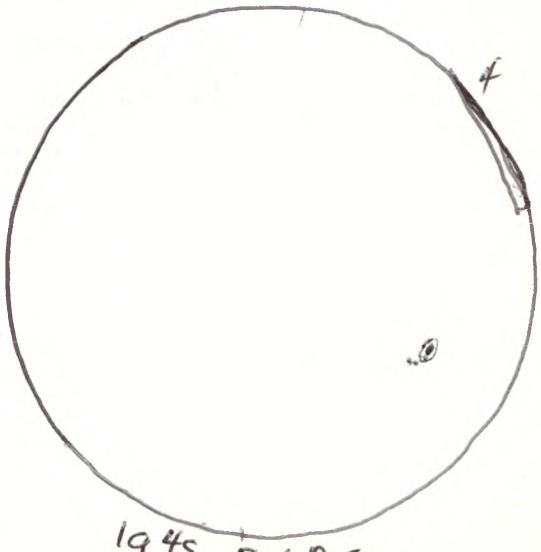
2g 3s
RSN23 July 13.74



2g 4s
RSN24 July 16.916



1g2s
RSN12 July 17.77



1g 4s July 8.8
RSN14

1985 F.S. Jul. 12-13 N 4:15-5:15 U.T. Y T8 S7 11x80
6259 χ Cyg, M13, M11

S. Jul. 13 A 17:50 U.T. S.S. C-8 32^{mm}, 20^{mm}
6259 sun 2g 3s (RSN 23)

S.S. Jul 13-14 N 4:15-6:00 U.T. Y T4 S7 11x80
6260 χ Cyg - 5.8, TT Cyg - 8.2, M13, Uranus, Neptune, M11, M57, M27, M15, M10, M12, M31.

Tu. Jul 16 A 21:45 - 22:00 U.T. S.S. C-8, 28^{m}, 20^{m} 15.5^{m}
6262 sun 2g 4s (RSN 24) 15.5^{m} required to see 2 of the spots.

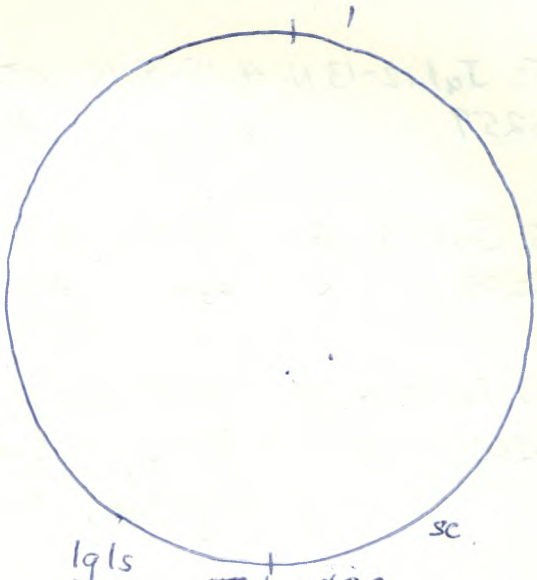
T.W. Jul 16-17 N 2:20 - 6:15 UT O.O. T9.5 S8 C-14 35^{mm} 2" (122X)
6263 M13, NGC 6207, M101, M51, M92, M57, M27, β Cyg, searched for Comet Giacobini-Zinner, NGC 7789 OC Cas, Saturn, Jupiter, NGC 7991, Stephan's Quintet which could be seen (at least 3 galaxies) without averted vision, α Her s, δ Her s, 70 Oph, M11, β Lyr, γ Del s. Aurora active (spikes) from 5:00-5:20 U.T.

W. Jul 17 A 18:30 - 18:40 U.T. SS C-8 32^{mm}, 28^{mm}, 29.5^{mm}
6263 sun 1g 2s (RSN 12) 15.5^{mm} required to see one of the spots.

W.T. July 17-18 N 2:00 - 6:00 UT. O.O. T10 S8.5 11x80 and C-14, 32^{mm} 2"
6264 Uranus, Neptune, [ϵ Lyrae, ζ Lyrae, δ Lyrae$_*$ - C-14] χ Cyg - 5.9, TT Cyg 8.4, V1357 Cyg X-1, SS Cyg <9 ; Uranus in C-14, Saturn, Jupiter, NGC 6522 and NGC 6528, Stephan's Quintet - easy to locate, M92, M13, NGC 6207, γ Del, M27, looked for Comet Giacobini-Zinner. Io's shadow transit was apparent at 4:22 U.T.
$_*$ SY Oph - 9
Flash - probably point meteor - at $20^{h}24^{m}$, +49° at 12:33:40 U.T.

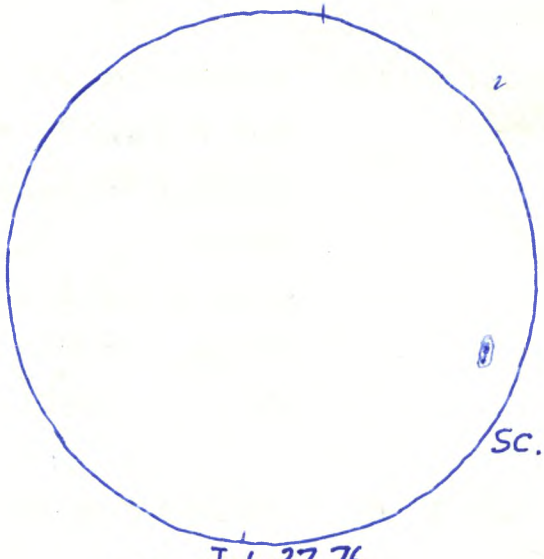
Th Jul 18 A 19:10-19:20 UT SS C-8, 32^{m}, 15.5^{m}
6264 sun 1g 4s (RSN 14)

lg ls
RSN 11 July 23.77



lg ls
RSN 11 July 24.82

Og Os
RSN 0 July 25.84



July 27.76
lg 2s
RSN 12

1985 Tu Jul 23 18:30 - 18:40 UT SS T C-8 32", 28", 20", 15.5"
6269 sun 1g 1s (RSN11) granulation apparent.

T.W. Jul 23-24 1:30 - 6:00 U.T 0.0, γ T959 C-14 32"E, 13"N ; 11x80
6270 photograph: crescent moon, Jupiter
observing: Comet Giacobini-Zinner in field of βCas, large, diffuse, with discernible tail, several minutes long, ηCas d, γ And d., 61 Cyg d., μ Cyg d (good in 13" ocular), Jupiter and shadow transit of Europa at 5:15 U.T., M57, the Veil Nebula, δ Del d, M27, M11
δ Dep v - 3.7, β Lyr v. 3.8, β Per 2.4.

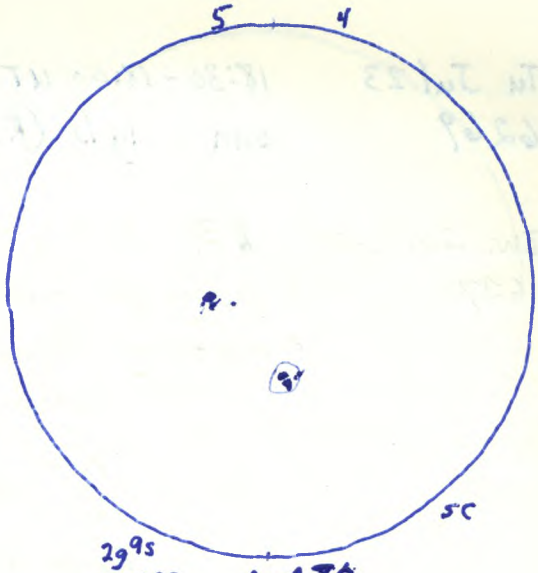
W. Jul 24 19:50 - 19:55 UT SS C-8, 32", 28", 20", 15.5"
6270 Sun 1g 1s (RSN11) granulation apparent.

Th Jul 25 20:10 - 20:15 UT SS C-8, 32", 28", 20", 15.5"
6271 Sun 0g 0s (RSN0)

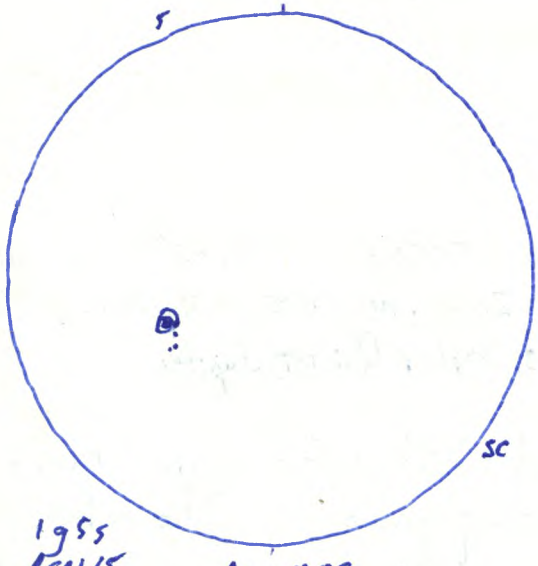
F.S. July 26-27 6:00 - 8:20 UT 00 T8.558 C-14, 32"E, 11x80
6273 M27, M57, Comet Giacobini-Zinner, M11, M32, M31, M110 ρ Here, γ Del, χ Cyg, NGC 7331, Stephan's Quintet, Jupiter
guest:
A fine night with good comet hunting and good company. Thanks for letting me share your observatory
David H. Levy

Sa. July 27 18:05 - 1810 UT SS C-8, 32" 28", 20", 15.5"
6273 Sun 1g 2s RSN12 granulation and faculae about the group
guest: thank you for a look at the sun.
David

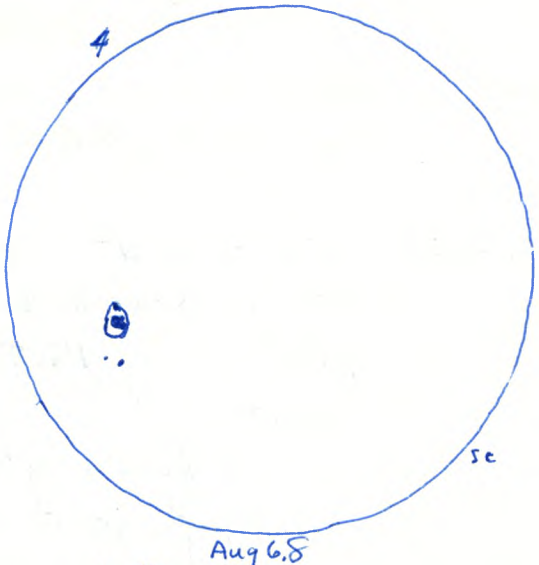
2g 17s
RSN37
Aug 6.8



2g 9s
RSN29
Aug 2.70



1g 5s
RSN15
Aug 4.92



Aug 6.8

1g 4s
RSN14

Sat.

Sat.

?

Sat.

1985 S.S. July 27-28 3:00-4:00 and 6:00-8:00 UT 0.0, s.s. T958 C-8, C-14, FRL, 32mm 40mm
6274 Jupiter, M57, M27, Comet Giacobini-Zinner, M31, M32, M110, βCyg, M13, M92, M22
guest: David Levy

Th Aug 1 19:00-19:10 UT ss C-8 32mm 28mm 20mm, 15.5mm
6278 sun 2g 17s RSN37

T.F. Aug. 1-2 3:00-3:30 UT y, s.s. T858 11x80, Astro., 25mm, 12mm
6279 Jupiter, Saturn, η Cas, M31, M13, M92, M22, Uranus, χ Cyg, α CanVen, Mizar and Alcor

F. Aug 2 16:50-17:00 UT ss C-8, 32mm 28mm, 20mm, 15.5mm (63x) (71x) (100x) (129x)
6279 sun 2g 9s RSN29

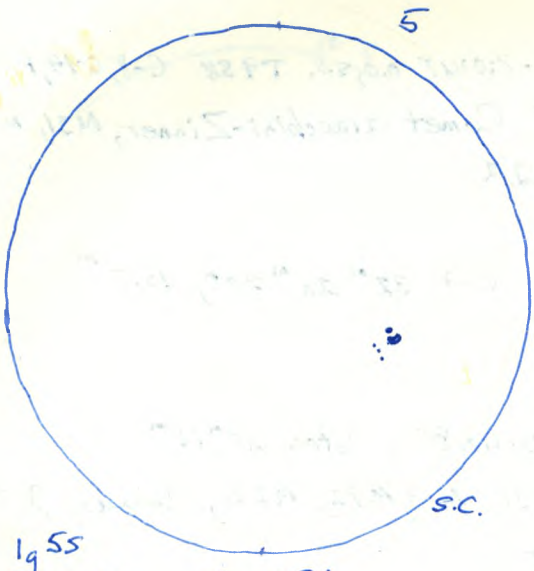
FS Aug 2-3 01:45-3:30 UT y, s.s T7(M)s9 11x80; C-8, 15.5mm (129x)
6280 Jupiter, Saturn, Comet Giacobini-Zinner near δ Cas, M51, Mizar, 36 Oph-d, βCyg, χ Cyg, TT Cyg, M57, M22, α Her-d, ε Boo-d

SS Aug 3-4 1:45-3:10 UT ss T7(M) s9 C-8 19mm (occ. 4mm, 12mm)
6281 Jupiter, Saturn Comet Giacobini-Zinner near δ Cas, M51 α CanVen., α Lib, β Lib, ε Boo-d. (s. with 4mm), M57, M11, M13, Mizar

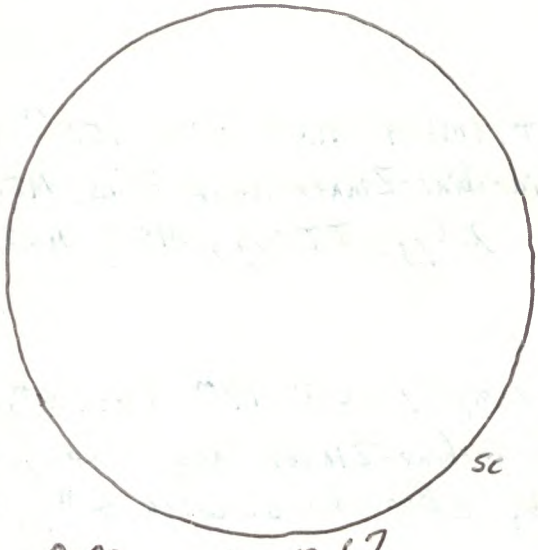
Su Aug 4 22:20-22:25 UT ss C-8, 32mm 28mm, 15mm
6281 sun 1g 5s RSN15

SM Aug 4-5 2:00-3:30 UT y, ss T9.5 s9 11x80, C-8, 19mm
6282 Saturn, Jupiter, Comet Giacobini-Zinner in Cas, M13, M51, M11, M22 M8, M20, M21, M24, M4, M5, M12, βCyg, M57, M27, χ Cyg SS Cyg <9, M15, σ Her, α Her, ε Boo-d, β Sco-d, υ Sco-d., δ Del-d, ε Lyr, NGC 6207 Her, NGC 6522 Sag, NGC 6528 Sag

Tu. Aug 6. 19:00-19:10 UT ss C-8, 32mm, 28mm 20mm, 15.5mm
6283 sun 1g 4s - 2 spots visible with the 15.5mm ocular.



lg 55
RSN=15 Aug 9.71



OgOs
RSNO Aug 12.67

OgOs
RSNO Aug 14.7

Comet Giacobini Zinner

1985 TF Aug 8-9 2:00-4:30 UT y, ss T9 S8 11x80, C-8, 19^m
6286 Uranus, Jupiter, Comet Giacobini-Zinner with a tail of considerable length and near the Double Cluster in Perseus the comet seen moving in reference to background stars, M13, M57, M27, M22, δDel-d, M11, M22, M8, M20, κHer-d, ε Boo-d, κ Boo-d, δ Sco-d, β Sco-d, M31, R Aqu-v-m.6.6, minimum of Algol, several Perseid meteors.

F Aug 9 17:10-1725 UT ss C-8, 36^m, 32^m 28^m, 20^m, 15.5^m
6286 sun lg 5s RSN15

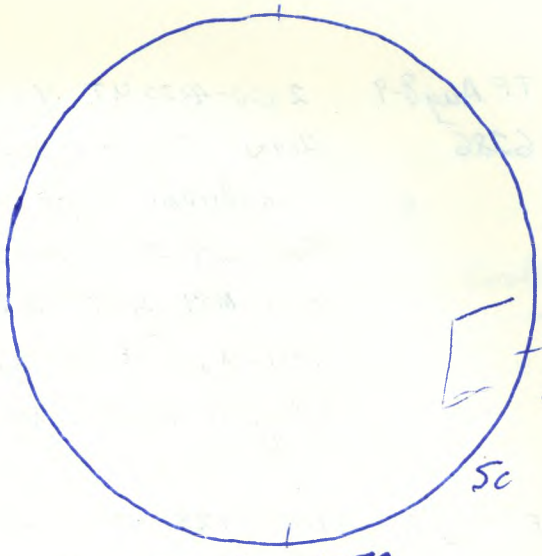
SM Aug 11-12 2:00-6:45 UT y T9.5 S8.5 n-e, 7x35, 11x80
6289 Perseid Meteor Shower - less numerous than expected probably averaging only about 20-30 per hour. wide-field photography attempted. Count 6:00-6:30 UT - 20 meteors Binocular viewing - M22, M8, M20, searching for Bernard's Star, M11, M31, M33, Sagittarius objects, Jupiter

M Aug 12 16:00-16:20 UT ss C-8, 36^m, 32^m, 28^m, 20^m, 15.5^m
6289 sun 0g 0s RSN0

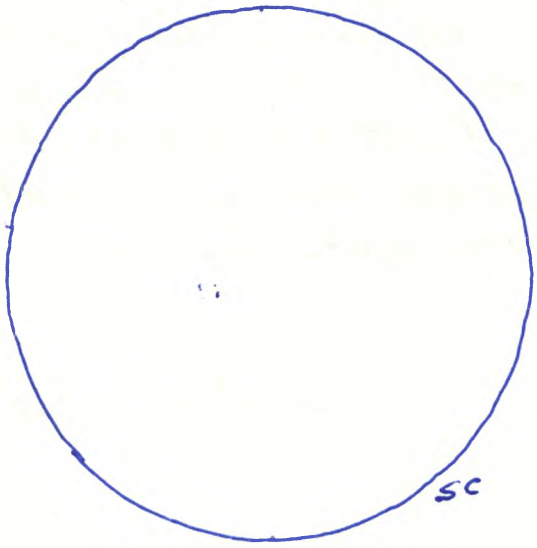
MT Aug 12-13 2:40-4:00 UT y T9 S7 ne
6290 very interesting Auroral display, active for over one hour with one and two arcs, flaming, and spikes, and from 2:40 UT to 3:15 UT a band 3 to 5 degrees wide from east to west intersecting the Milky Way at Sagitta and then at Aquila, more intense in the west and with bars for a time in the area of the Milky Way. some coronal activity. later less active. several bright Perseids seen. -photographed some Aurora.

W Aug 14 16:50-16:55 UT ss C-8, 36^m, 32^m, 28^m, 20^m, 15.5^m
6291 sun 0g 0s RSN0 granulation apparent.

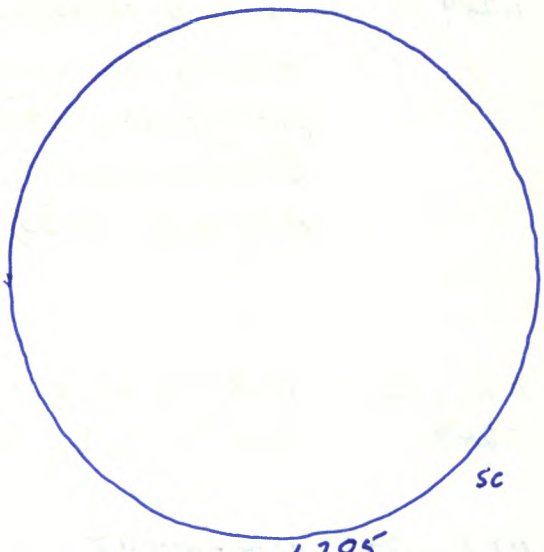
OgOs
RSNO Aug22.93



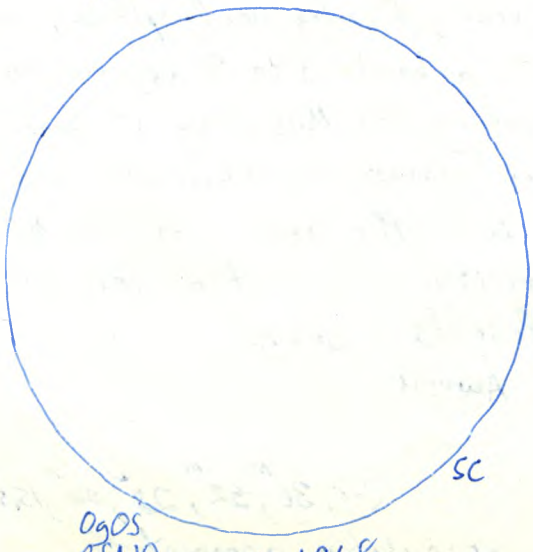
OgOs Aug23.72
RSNO



5
IgSs Aug31.77
RSN15



OgOs Sept.2.85
RSNO



OgOs
RSNO Sept.8.68

1985 FS Aug 17-18 3:00-8:30 UT Breezy Hill, Stellafane T9 S8.5 John Voight's 24" f4, Steve Dodson's 22" f7.3 and others
6295
Veil Nebula (!), M31, M57, Stephan's Quintet, and perhaps Halley's Comet which was supposed to be in the field of the 24" and very faint, a number of meteors some of which were Perseids.

SS Aug 18-19 2:00-3:00 UT Breezy Hill, Stellafane T8 S8 1e
6296
during the twilight talks
a number of sporadic meteors.

Th Aug 22 22:35 UT y C-8 28m
6299
sun OgOs RSN quick look because of clouds

F Aug 23 17:10 UT ss C-8 32m, 28m 20m 15.5m
6300
sun OgOs RSNO granulation seen; area of faculae.

Sa Aug 31 18:30 UT ss C-8 32m 28m 20m 15.5m
6308
sun lgSs RSN15 5 very small sunspots

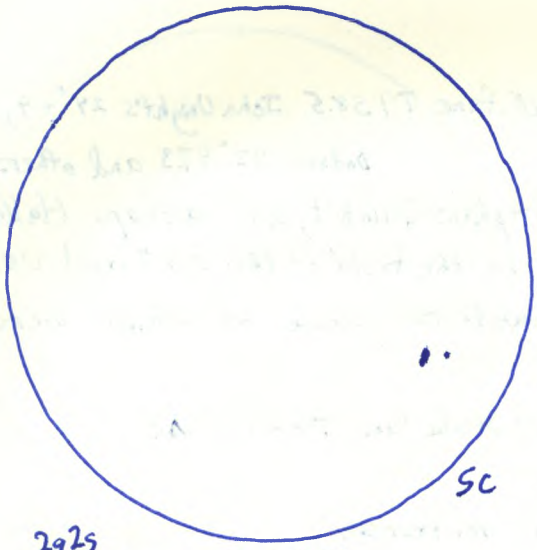
SS Aug 31-Sept. 1 1:20-1:30 UT yt T6S7 11x80 r Astroscan - 19m, 9m, 17m, 9r2xBarlow
6309
Jupiter, Saturn and 2 moons, Mizar, M4, M22 - under almost Full moon

M Sept. 2 20:25-20:35 UT ss C-8, 32m, 28m 20m, 15.5m
6310
sun OgOsRSNO granulation very evident.

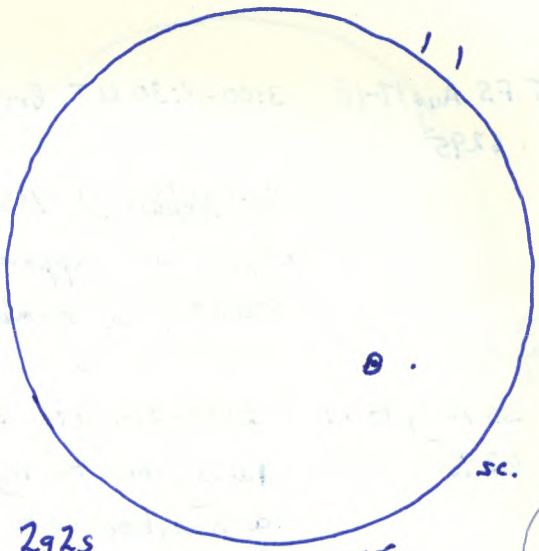
W-T Sept. 4-5 2:00-2:20 UT yt T8.5S8 Astroscan 28m, 15m, 8m
6313
M28, M22, M8, M20, M11, M31, M57, Jupiter, ν Del (!).
(2 flashes about 3° south of βLyr - possibly a tumbling earth satellite - about 2:10 UT.)

Su Sept. 8 16:20-1625 UT ss C-8 32m, 28m, 20m, 15.5m
6316
sun OgOs RSNO granulation very evident.

T-F Sept. 12-13 00:20-00:40 UT y T6(twilight)S9 Astroscan 15m, 8m
6321
Jupiter, Saturn, μCep, βCyg, M31.



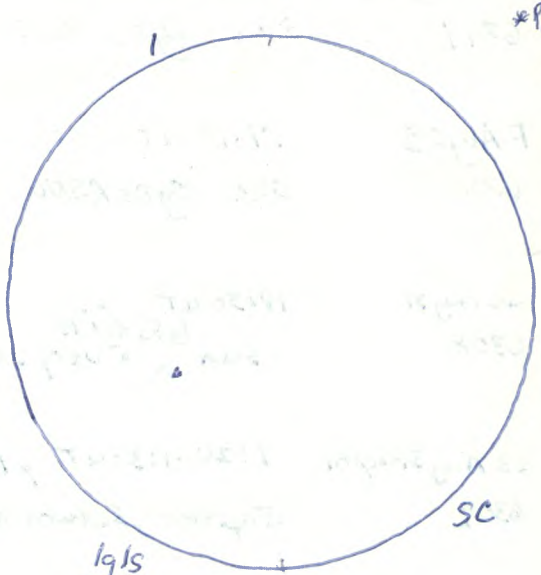
2g2s
RSN22 Sept 14.71



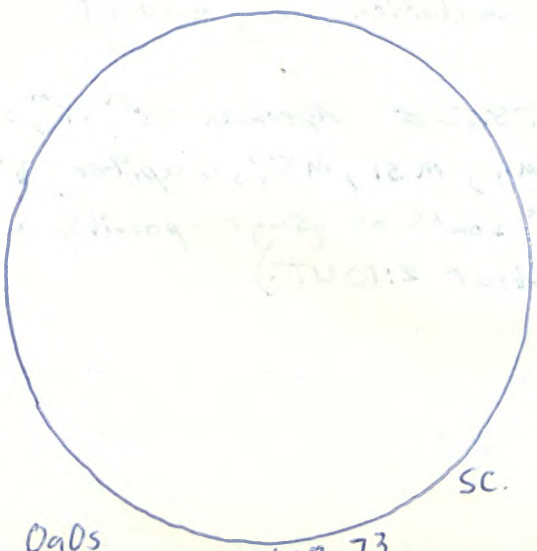
2g2s
RSN22 Sept. 15.65

206x
*P/Halley expected but not seen

1g1s
RSN11 Sept. 16.9



1g1s
RSN11 Sept. 19.88



0g0s
RSN0 Sept. 22.73

0g0s
RSN0 Sept. 24.85

Sun
Sept. 25.9 →

1985 Sa Sept. 14 17:10 - 17:15 UT ss C-8, 20^m
6322 sun 2g 2s RSN22

11x80

Sa-Su Sept 14-15 2:15 - 9:00 UT 0.0. and ss T9 59 C-14, 55^m, 32^m, 19^m; C-8, 19^m;
6323 M31, M110, M57, M33, M27, M11, M13 & Her, γ Del, μ Cas, Veil Nebula, NGC 6022 (near M13), NGC 7331, Stephan's Quintet, North America Nebula, M36, M37, M38, Jupiter, search for over one hour for Halley's Comet but it was not seen with certainty in the precise spot shown on the Sky and Telescope map (September, 1985, p. 222); there seemed to be an additional object slightly north of the position indicated on the map. (Bob McGlashen also observed with me)

Su Sept. 15 15:40 - 15:45 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m
6323 Sun 2g 2s RSN22

M Sept. 16 21:40 - 21:43 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m
6324 sun 1g 1s RSN11 granulation very evident

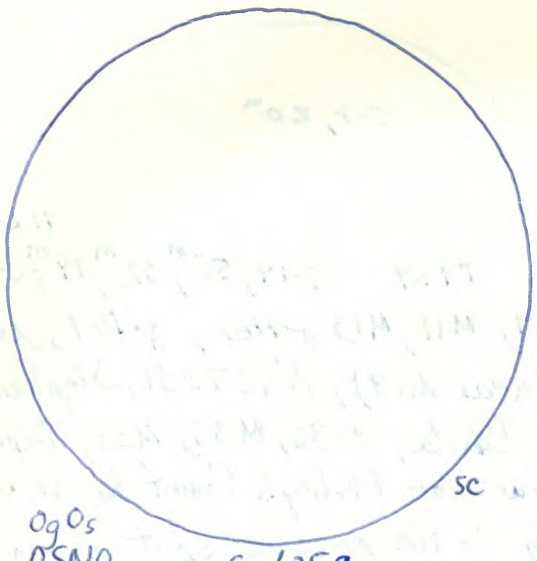
Th. Sept. 19 21:10 - 21:12 UT ss C-8 32^m 28^m 20^m 15^m
6327 Sun 1g 1s RSN11 some granulation seen

Su Sept. 22 17:25 - 17:30 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m
6330 Sun 0g 0s RSN0 granulation seen

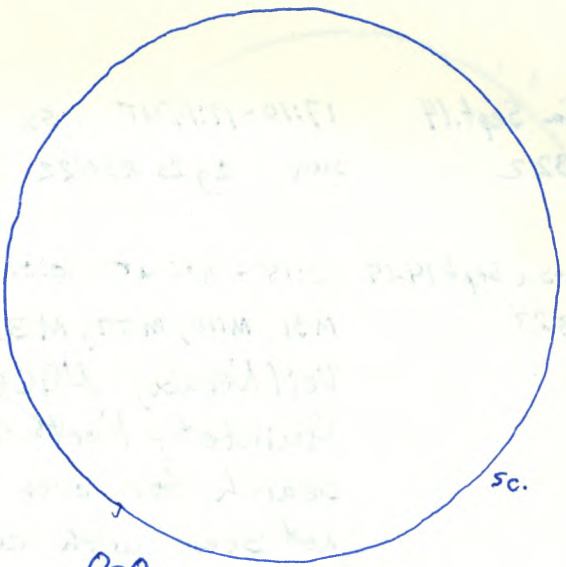
Tu. Sept. 24 20:35 - 20:40 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m
6332 sun 0g 0s RSN0 granulation evident at the lower powers

W. Sept. 25 21:40 - 21:45 UT ss C-8, 32^m, 28m, 20^m, 15.5^m
6333 Sun 0g 0s RSN0 some granulation seen

Su Sept. 29 17:00 - 17:05 UT ss C-8, 36^m 32^m, 28^m 20^m, 15.5^m
6337 sun 0g 0s RSN0 granulation very evident.



Og Os
RSNO Sept. 25.9

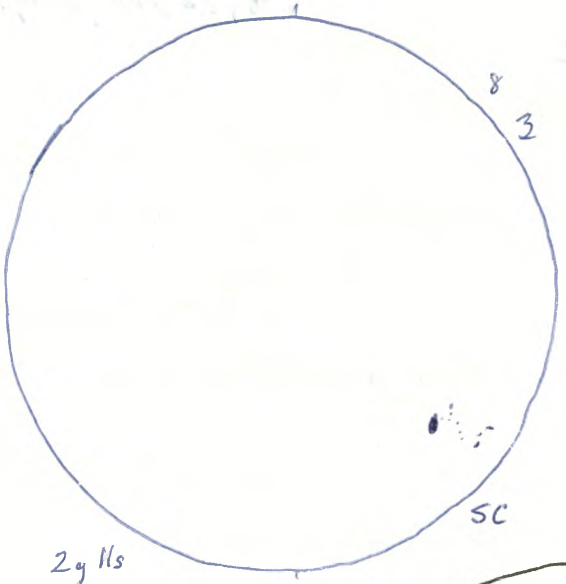


Og Os
RSNO Sept. 29.7

Og Os
RSNO Oct. 3.85 SC.

Og Os
RSNO Oct 5.88 SC.

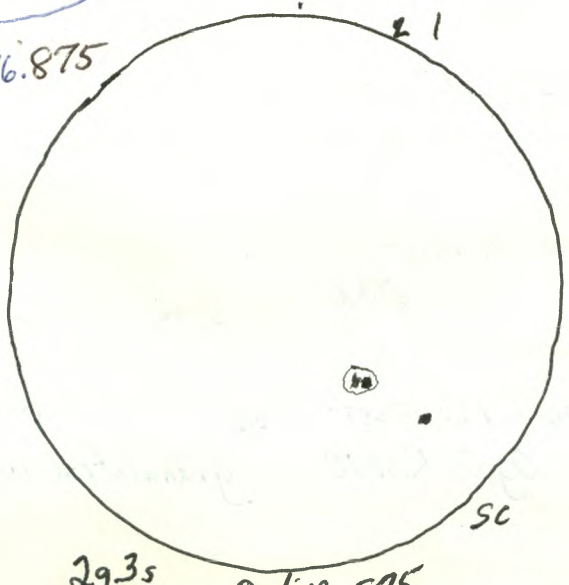
? Monday Oct. 7
Solar observation
Og Os RSNO
about 11:40 AM
(not immediately recalled)



2g 11s
RSN 31 Oct. 16.875

• χ^2 Orionis

movement of
Halley's Comet
during observation
period



2g 3s
RSN 23 Oct. 19. 875

1985 Th Oct. 3 20:25 - 20:30 UT SS C-8, 32m, 28m, 20m, 15.5m
6341 sun Og Os RSNO granulation very evident with 28m

Sa Oct. 5 21:08 - 21:12 UT SS C-8 32m, 28m, 20m, 15.5m
6343 sun Og Os RSNO granulation apparent

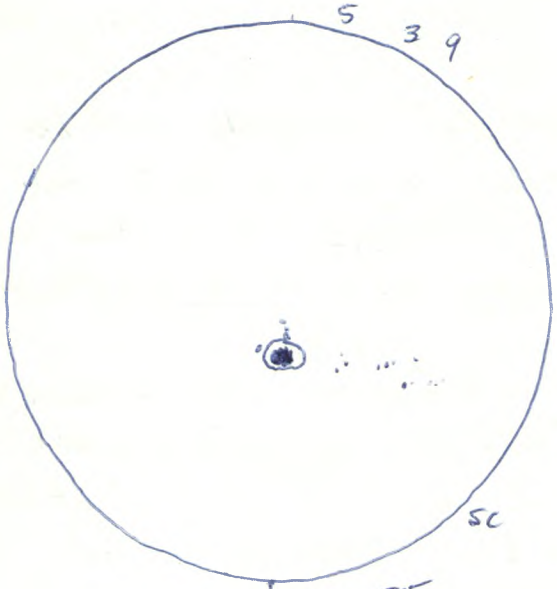
F-S Oct. 11-12 7:15 - 9:40 UT OO SQT9 C-14, 32m König, 19m WF (122x 206x)
6350 M1, Halley's Comet - very definitely and very clearly at both 122x and 206x both with and without averted vision, more than a "fuzzy star" - definitely comet-like with coma visible - about magnitude 12.0 and about 1° from the star χ² Orionis. The position was confirmed from the map on page 222 of Sky and Telescope, September, 1985. I also photographed the area with exposures from about 1 to 6 minutes using Fujichrome 400D in the Fleamera and 200mm f-2.8 lens piggybacked on the C-14. Zodiacal Light was also excellent up to about 60° through the constellation Leo. I also observed and photographed the Orion Nebula; while observing it was very easy to see six stars in the Trapezium. It was possible to confirm "motion" in Halley's Comet.

W. Oct. 16 21:01 - 21:06 UT SS C-8, 32m 28m, 20m, 15.5m
6354 sun Og Os RSN31 faculae near spots.

W-T Oct. 16-17 23:15 UT Y SS(?) TS (twilight) ne
6355 young crescent moon in west - alt. about 10°, about 5h less than 3d old.

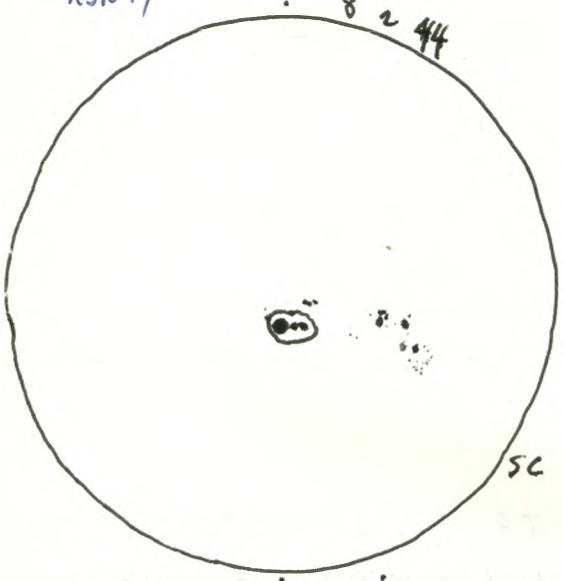
Sa Oct. 19 21:02 - 21:06 UT SS T6 C-8, 32m 28m 20m 15.5m
6357 Sun 2g 3s RSN23 cloud prevented clear view of sun

Sa-Su Oct. 19-20 (1) 2:30 - 4:00 UT y and ss T6 S8(?) 11x80's and C-8, 32m (2"E)
and (2) 5:30 - 6:30 UT ss T4-5 S8(?) C-8, 32m, 19m 15.5m 12m
In Session (1), I observed Jupiter, Comet Hartley-Good,



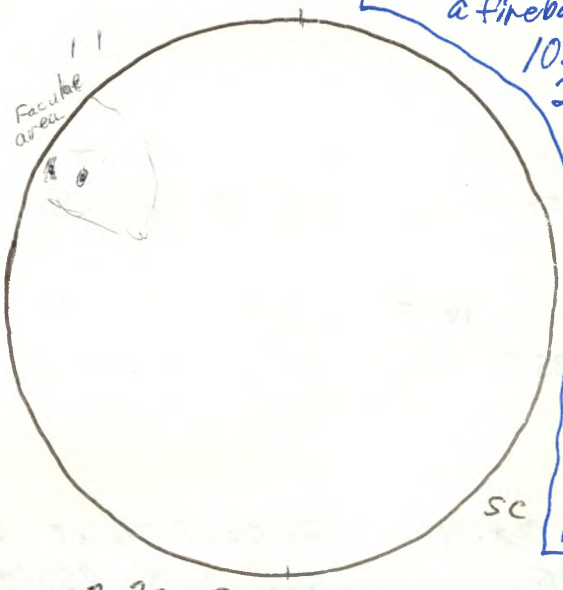
3g 17s
RSN47

Oct. 20. 85



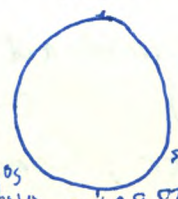
3g 54s
RSN84

Oct. 21. 83



2g 2s
RSN22

Oct. 27. 83



0g 0s
RSN0

Oct. 28. 875

0g 0s
RSN0

Oct. 31. 85

Oct. 21
about 9:45 UT
– no Orionid meteors seen through window during about 5 minutes

Numerous Reports of a fireball at about 10:30 p.m. E.D.T. Oct. 23-24
2:30 UT Oct. 24
going South to North and extremely bright

Phoned Dr. Ian Halliday on Oct. 28. There may have been a meteorite.

1985 Oct

which had been recently discovered and whose ephemeris I had just learned during the day, (about 7.0 mag., but large and diffuse, in Aquila about 5° SSW of θ Aqu, seen after moonset but with some haze and light cloud interfering at time and it was at an altitude of about 10°–15°.) M15, M57, ≡ γ Del-d, M31, M32, M110 (NGC 205)

- prior to that – with binoculars – M45, search for Comet Hartley-Good
- In Session 2, I searched for Comet Halley in Orion NE of χ¹ Ori, but was not sure of seeing it with the C-8. Transparency was not good and became worse near the end of the observing session.

Su Oct. 20. 20:35–20:45 UT SS T 8 (some haze) C-8, 32m, 28m, 20m, 15.5m
6358 Sun 3g 17s RSN47 Hazy cloud was somewhat of a hindrance.

M Oct. 21 20:00 – 20:10 UT SS C-8, 32m, 28m, 20m, 15.5m
6359 Sun 3g 54s RSN84

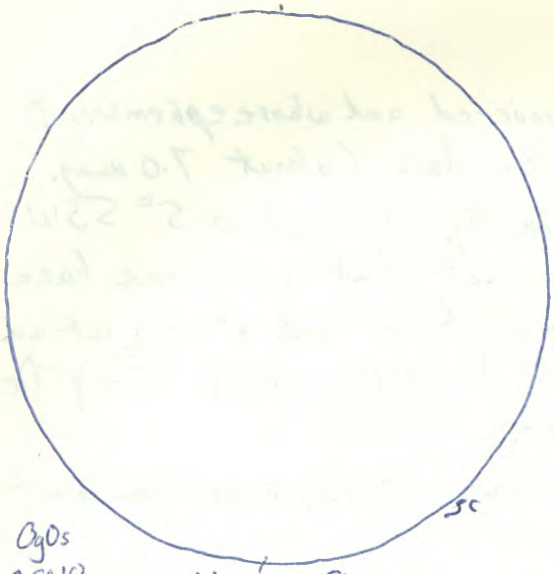
Su Oct. 27 20:55 – 20:02 UT SS T 10 S5 C-8, 32m 28m 20m 15.5m
6365 Sun 2g 2s RSN22 faculae near spots; "seeing" not good

M. Oct. 28. 21:00–21:05 UT SS (table T 10 S6 C-8, 32m 28m, 20m
6366 Sun 0g 0s RSN0 only a brief observation with sun low (~10° alt)

Th Oct 30-31 4:05–4:10 UT y T 9 S? ne
6369 bright near-full moon, constellations, one 4th mag. meteor in Cygnus.

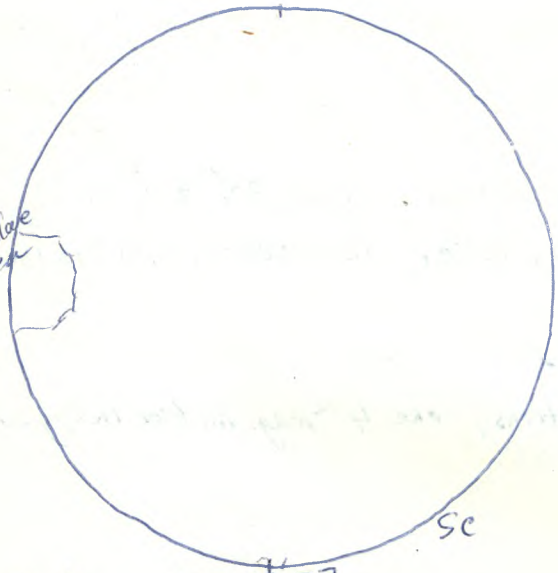
Th Oct. 31. 20:19 – 20:21 UT y C-8, 32m, 20m
6369 Sun 0g 0s RSN0 – sun very low – about 8° above horizon

Th Oct. 31–Nov. 1 23:20 – 23:50 UT (Oct. 31) SS T 8,5 S9 C-8, 32m 55m, 40m, 13m
6370 Comet Hartley-Good – large, diffuse, about mag 6.5
at coordinates: RA: 19h 05m; Dec +03° 45' (1950)
and Jupiter during a Transit of III Ganymede



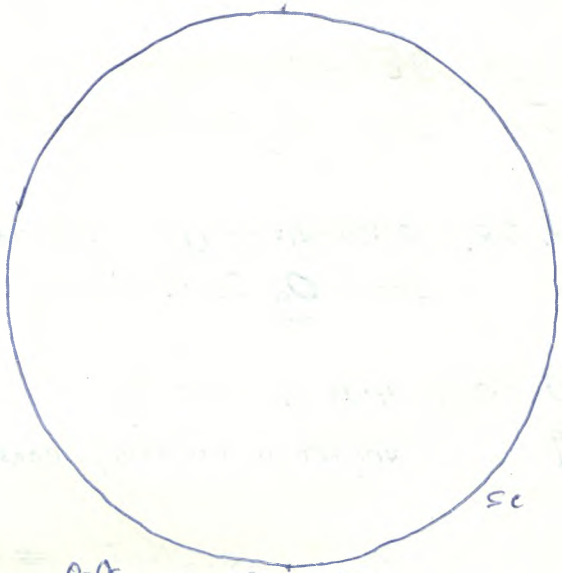
OgOs
RSNO

Nov. 2. 78



OgOs
RSNO

Nov. 23. 77



OgOs
RSNO

Dec. 3. 86

Dec. 3: 55: 16: 28
A.T. 18: 12
MR. 22:08

1985 Sa. Nov 2. 18:45-18:50 UT ss C-8, 32", 28", 20", 15.5"
6371 Sun Og Os RSNO granulation apparent

~~TF~~. Nov. ~~7-8~~ 6:25-6:30, 6:35-6:40UT y 11x80's
6377 Halley's Comet about mag. 8.5 seen without too much difficulty ESE of ζ Tau. Averted vision was not necessary to see it, but was sometimes helpful.

F.-S. Nov ~~8-9~~ 5:00 - 6:30 U.T. y, s.s., o.o. T8S7 11x80's; C-8, 32"; C-14, 32"
6378 Halley's Comet observed easily in 11x80's, C-8 at 63X, and C-14 at 123X. It was also easily seen in the C-14's 8x40 finder and even in the C-8's 6x30 finder. It was large, diffuse and at about 8.0 magnitude. Photographs were attempted with the 200mm telephoto lens guided on the C-14. A number of meteors were also seen. Eventually clouds ended the session.

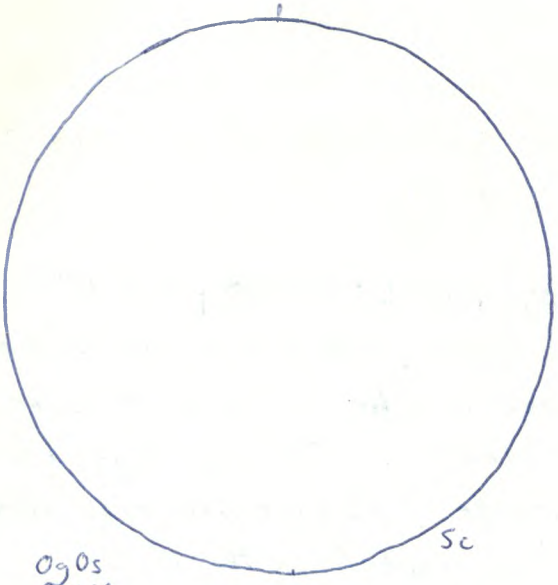
~~T~~ Nov. ~~14-15~~ 7.45 UT y T958 11x80's
6384 Halley's Comet not far from the Pleiades found easily.

F.-S. Nov 15-16 1:30 - 4:00UT; Fort Henry Parking Lot, Kingston; T4-6,58; Astro, 32", 17", 11x80's
6385 - with Kingston Centre observers at observing session to view Halley's Comet. Cirrus cloud and haze made observing very difficult and somewhat unpleasant. The comet could be seen with difficulty in the Astroscan 4½" telescope using the 32" ocular, and the 28" and 17".

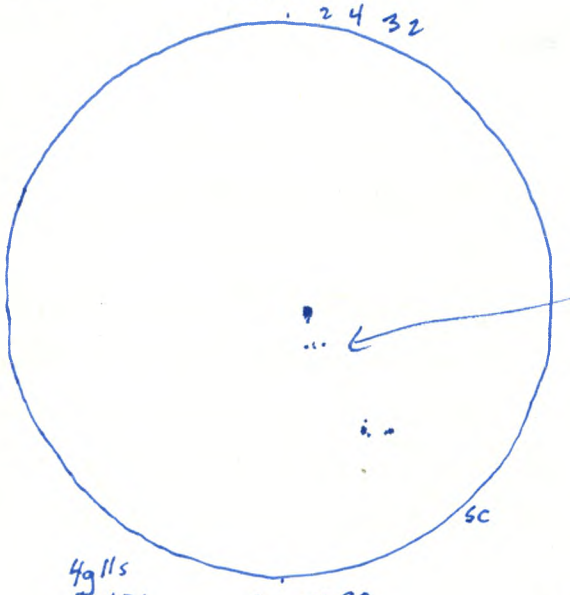
Sa Nov 23 18:25-18:30 UT ss C-8, 32", 28", 20", 15.5"
6392 Sun Og Os RSNO granulation seen, and faculae

Tu. Dec. 3 20:34-20:38 UT ss. (on table) C-8, 32" 28" 20" 15.5"
6402 Sun Og Os RSNO - sun low in the west

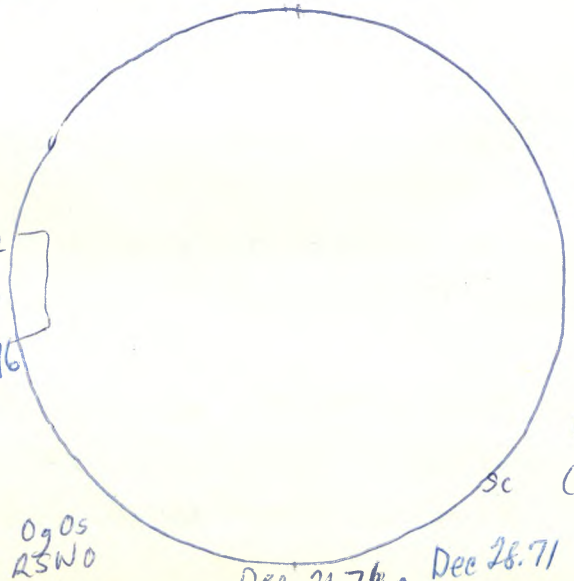
~~T~~-W. Dec. 3-4 23:00 - 2:00 U.T. o.o. and y T9.5S8 C-14, 32", 55"; 11x80s
6403 At last it was a clear night! With 11x80 binoculars, I tried to observe Comet Hartley-Good, which I may have seen, Comet



OgOs
RSNO Dec. 6. 86



4g11s
RSN51 Dec. 14. 82



OgOs
RSNO Dec. 21. 76, Dec 28. 71

Indoor Morning Observation

Dec 17:
11:45 UT (6:45 a.m. E.S.T.)
In SE - Mercury and Saturn in Scorpius very close - calculated angular distance apart for 12:00 UT (15 min. later) 0°.71 or 0° 42' 36"

1985

Thiele, ~~and~~ which probably was not seen with them, and Comet Halley which was very easily seen. I also observed Jupiter and photographed area of Comet Halley and the Pleiades and area of M42. I had also tried to observe Comet Hartley-Good and Comet Thiele in the C-14 using the 32m ocular, but did not see them with certainty. The former was quite low in the WNW and trees soon interfered. Comet Halley was at approximately 6.1 magnitude and may have been glimpsed naked-eye using averted vision.

F. Dec. 6 20:38-20:42 UT y C-8, 32m, 28m, 20m
6405 sun Og Os RSNO sun very low -5° to 10° above horizon

F-S. Dec. 6-7 3:45-5:15 UT OO T8 57 C-14, 55m and 55m in EasyGuider
6406 - Halley's Comet, Pleiades, M42, M43 with lens forward.
I intended to photograph Halley's Comet but the western sky became cloudy and hazy. I then photographed M42 and the Pleiades. Cloud cover caused the end of the observing session.

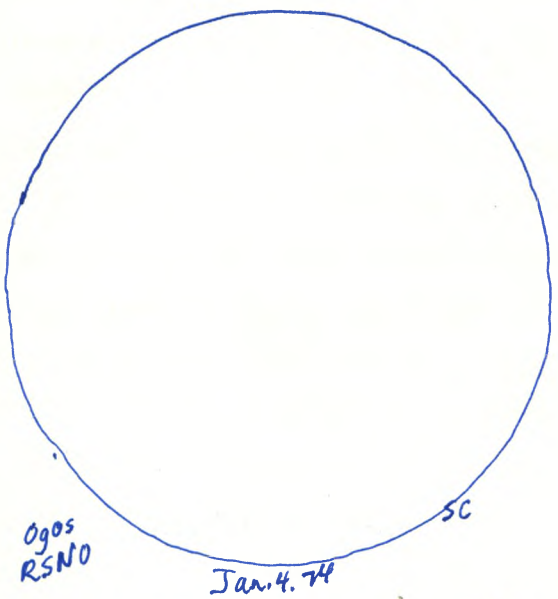
Sa. Dec 14. 19:45-19:50 UT SS C-8, 28m, 20m, 15.5m
6413 sun 4g 11s RSN51

SS. Dec. 14-15 23:40-1:10 UT OO and SS T958 C-14, 32m E and C-8, 32K
6414 Halley's Comet - bright - about mag. 6.0
Jupiter - seen poorly because of cloud (in C-8)
Session ended because of clouds and photographs also were not taken because of clouds.

Sa Dec 21 18:05-18:15 UT SS C-8, 32m, 28m, 20m, 15m
6420 sun Og Os RSN0 granulation apparent

Sa Dec 28 17:10-17:15 UT C-8, 32m, 28m, 20m, 15.5m
6427 sun Og Os RSN0

Dec. 28-29:
end of astronomical twilight:
about 6:20 p.m.
moonrise: about 6:50 p.m.



morning of Jan. 7. RA. Dec.

moon: about $16^h\ 12^m$ -23.5° (in Libra)

Mercury 18 10 -23.9°

Venus 19 00 -23.3

Mars 14 49 -15.25

Saturn 16 17 -19.5

morning of Jan. 7:
~~saw~~ moon near Saturn in morning sky
Mars near Spica

1985 Sat. Dec 29-30 23:40 - 00:00 UT yard in Read T9 S8 11x80s
6429 Halley's Comet in Aquarius. Est. Mag.: 5.5 - not definitely seen ne.
M42, Pleiades.
One meteor - about mag. 2.

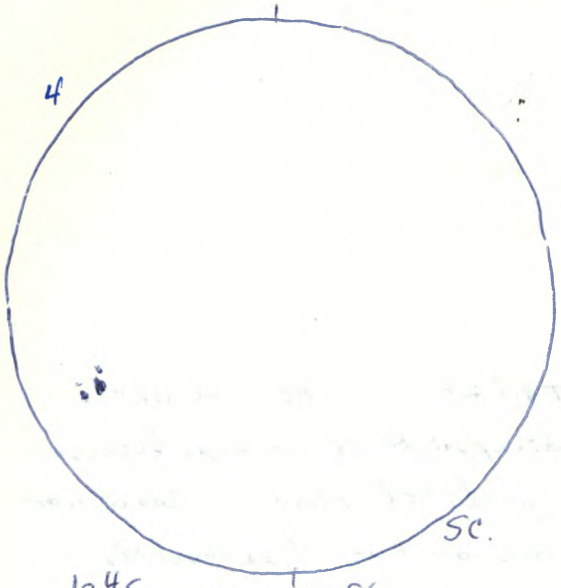
1986 W-T Jan. 1-2 23:45 - 00:15 UT Read rectory T9 S8 11x80s
6432 Halley's Comet in Aquarius Est. Mag.: 5.5 - not definitely seen ne.
M42, Pleiades, M36, M37, M38.

F-S Jan. 3-4 3:00-3:20 and 4:00-4:20 UT y T9.5 S8 ne and 11x80s
6434 - Quadrantid Meteor shower - a disappointment, perhaps because it was 8 hours past maximum predicted time - about 2 or 3 meteors seen, perhaps only one or two Quadrantids
- some attempts to photograph them
- night of superb transparency after so much cloudy weather; Milky Way in Auriga was very clear.
- M36, M37, M38, stars in Lepus - with 11x80 binoculars

Sa Jan. 4. 17:42-17:45 UT SS T2 C-8, 28", 20"
6434 Sun O_S O_S RSNO - no spots detected. very dense hazy cloud.

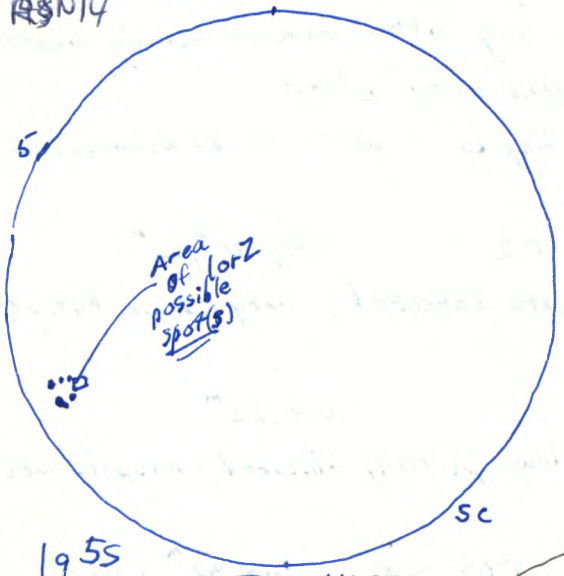
Su Jan. 5 20:55-20:58 ~~UT~~ UT Y C-8, 32"
6435 Sun O_S O_S RSNO - sun very low partially obscured - no spots seen

M-T Jan 6-7 23:15 - 00:00 UT 00 and y T9.5 S8 C-14, 32"; 11x80
6437 Halley's Comet: est. mag. 5.5 possibly glimpsed ne.
fuzzy object in 11x80's; remarkably bright and with a good tail in C-14.
Zodiacal Light very bright and high in area of the comet.
A remarkably extensive and bright Aurora lasted throughout the session increasing from northern glow to very large circular formations centred near the north pole.
Intense brightness was seen in Orion and Gemini and in Pegasus.
It hampered seeing Halley's Comet
- attempted photographing Halley's Comet.

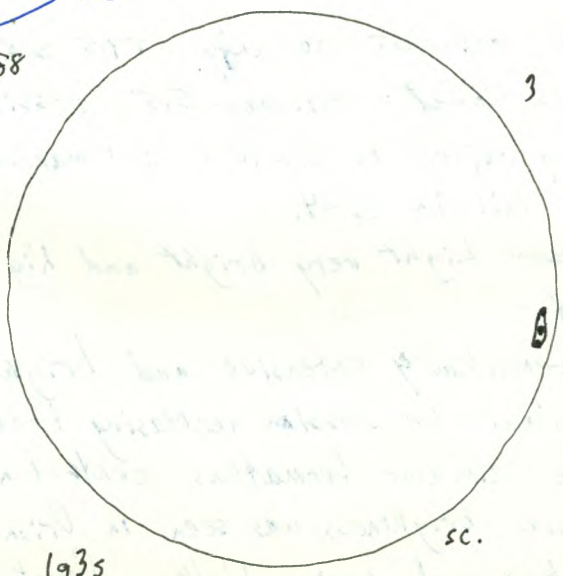


1945
RSN14
Jan. 13.86

morning of Jan. 7-8:
saw small crescent moon in
S.E. morning sky.



1955
RSN15
Jan. 14.88



1935
RSN13
Jan. 30. 87

1986 T-W Jan 7-8 23:00 - 1:30 UT OO and y T 7-9, 58 C-14, 32" and 11x80s
6438 Halley's Comet: est. mag. 5.5 - very bright tail possible to discern faintly - haze and possibly faint cloud for atleast part of observing session
- joined by 5 members of the Giroux family to observe the comet.
- attempt to photograph the comet - Piggyback photography.
- possibly glimpsed naked eye.
- easily seen in binoculars.

M Jan. 13 20:45-20:50 UT S.S. T 9 55 C-8, 32", 28", 20", 15.5"
6443 sun lg 45 RSN 14 seeing very poor

M-T. Jan. 13-14 22:45 - 1:30 UT O.O T 9 58 C-14, Giant Easy Guider and 32"
6444 observed and photographed Halley's Comet, in spite of a crescent moon, est. mag 5.4.
observed Pleiades, M31, Orion Nebula.

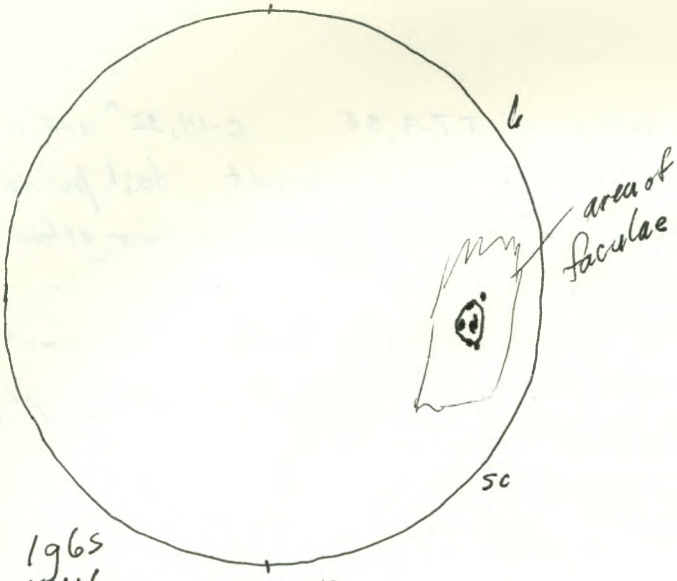
T. Jan 14 21:05 - 21:10 UT y (step) C-8, 28" 20" 15.5"
6444 sun lg 55 RSN 15 Occasionally possible sighting of one or two other faint spots

T.-W. Jan 14-15 23:15 - 1:20 U.T. O.O. T 9 58 C-14 Giant Easy Guider and 32"
6445 observed and photographed Halley's Comet (est. mag. 5.4) and the crescent moon and M42, M43

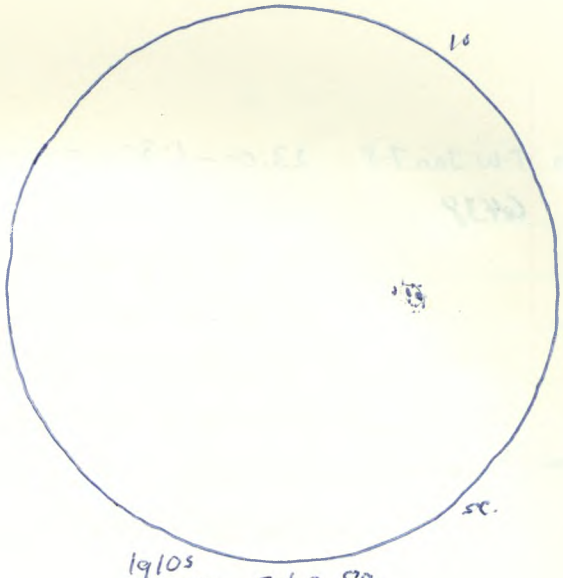
Tu Jan. 21 20:50 - 20:55 UT SS C-8, 32", 28", 20", 15.5"
6451 sun Og Os RSNO granulation apparent.

Th. Jan. 23 17:50 - 17:55 UT SS C-8 · 32", 28" 20" 15.5"
6453 Sun Og Os RSNO - some granulation seen
special guest observer: Roy L. Bishop

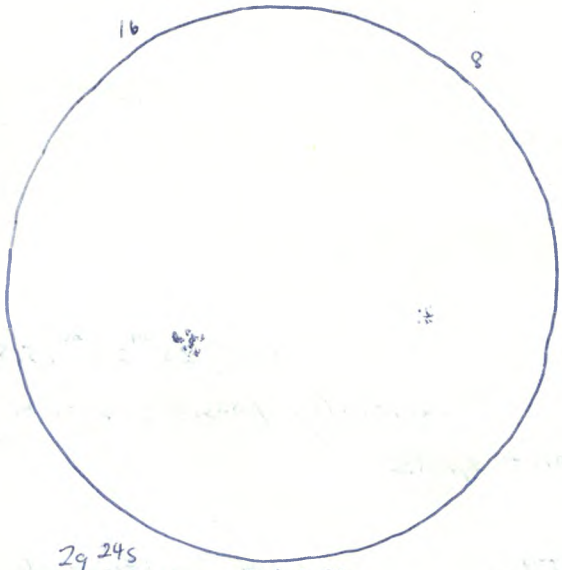
Th. Jan 30 20:48 - 20:54 UT SS C-8 - 32", 28", 20", 15.5"
6460 Sun Og 3s RSN 3



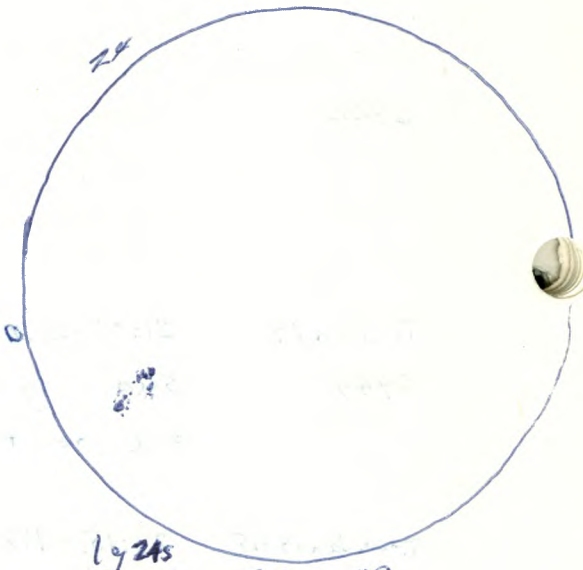
1g6s
RSN6 Jan. 31.87



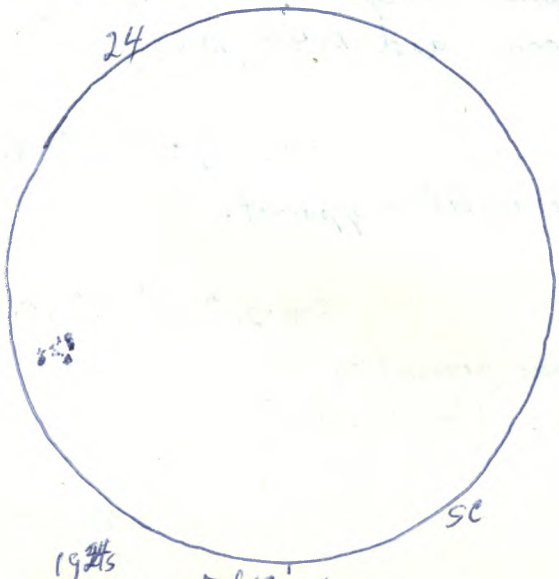
1g10s
RSN20 Feb. 2. 89



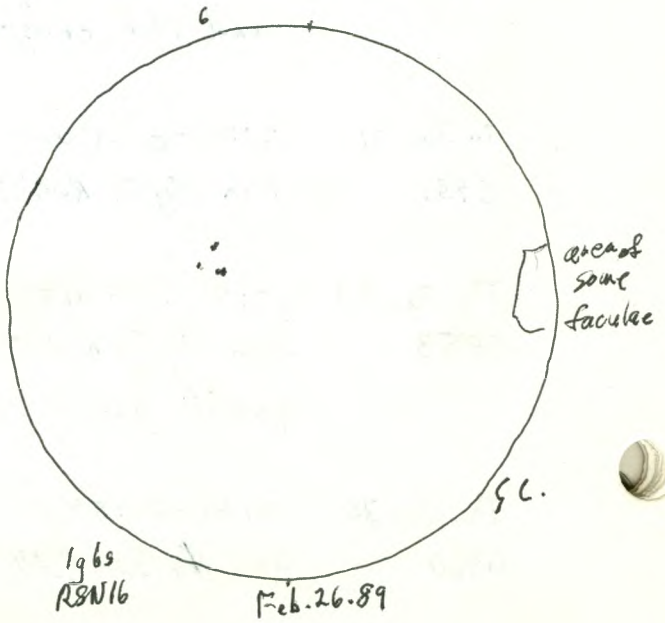
2g 24s
RSN44 Feb. 6. 89



1g 24s
RSN34 Feb 11, 89



1g 24s
RSN34 Feb 12. 89



1g6s
RSN16 Feb. 26. 89

1986 F. Jan. 31 20:50-20:54 UT SS C-8, 32^m 28^m, 20^m, 15.5^m
6461 sun 1g 6s faculae evident near the sunspots

Su. Feb 2 21:38-21:54 UT north and south deck C-8, 32^m
6463 sun 1g 10s - sun very low (possibly more spots)

M.-T Feb. 3-4 23:44 and 1:20-1:40 UT y T9.5 57-8 ne
6465 - observed and photographed the Zodiacal Light which was very good and very high, extending up to the constellation, Aries, or even higher. Transparency was excellent.

Th. Feb. 6 21:40-21:45 UT south deck C-8, 32^m, 28^m
6467 sun 2g 24s RSN 44

Tu Feb 11 21:35-21:40 UT y-table C-8, 32^m, 28^m, 20^m, 15.5^m
6472 sun 1g 24s RSN 34

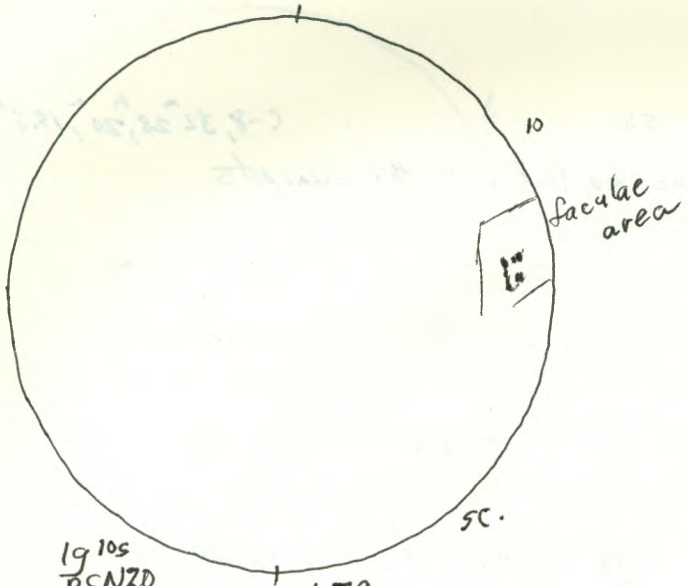
T.-W. Feb 11-12 5:40-5:45 UT indoors and north step T9.5(?) ne
6473 interesting and bright Aurora forming a broad band in the west through Orion - slightly greenish and yellowish.

W Feb 12. 21:35-21:40 UT SS C8-32^m 28^m 20^m, 15.5^m
6473 sun 1g 24s RSN 34

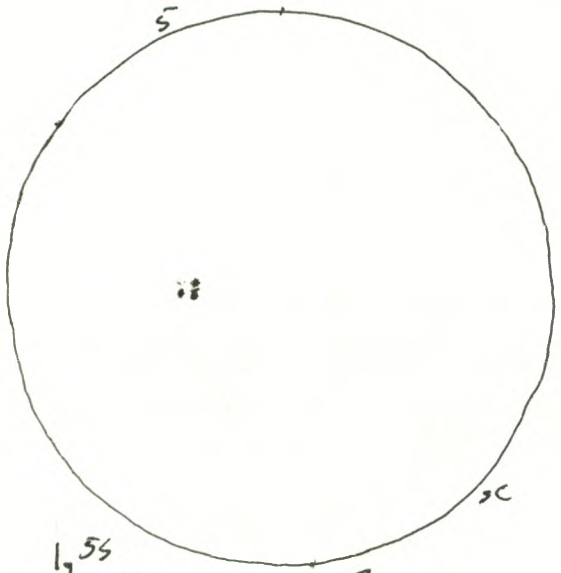
Tu. Feb. 25 21:25-21:30 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
6486 sun 0g 0s RSN 0 little granulation seen

W. Feb. 26 21:27-21:32 UT SS C-8, 32^m 28^m, 20^m, 15.5^m
6487 sun 1g 6s RSN 16 - possibly some other faint spots in the group.
- some faculae near the equatorial region near r. limb.

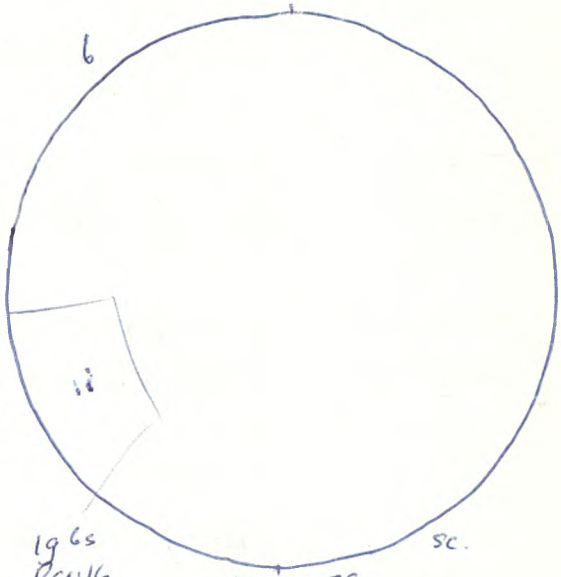
W.-T Feb. 26-27 00:52-01:40 UT SS and y T9.5 58 Astroscan, 19^m and ne.
6488 M42, M43, M41, M44, M45, Zodiacal Light which was up higher than the Pleiades and superb and very distinct comparatively.



lg 10s
RSN20
Mar. 1.79



1.5s
RSN15
Mar. 8.73



lg 6s
RSN16
Mar. 11.79

1986 Th. Feb. 27 21:50-21:55 UT SS C-8 32", 28", 20", 15.5"
6488 Sun 0g 0s RSNO little granulation, sun low

Sa. Mar. 1 18:55-19:00 UT SS C-8 32", 28", 20", 15"
6490 Sun 1g 10s RSN20 faculae near the sunspot groups.

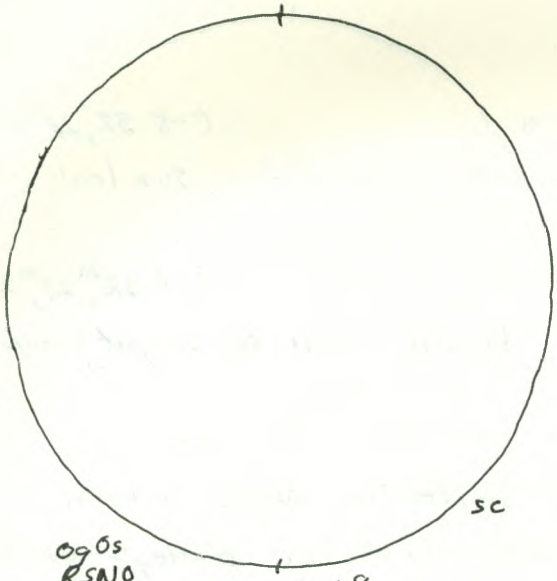
W. Mar. 5 10:45 UT indoors ne
- waning crescent moon in Sagittarius, Mars, Saturn.
- did not go out to try seriously to see Halley's Comet.

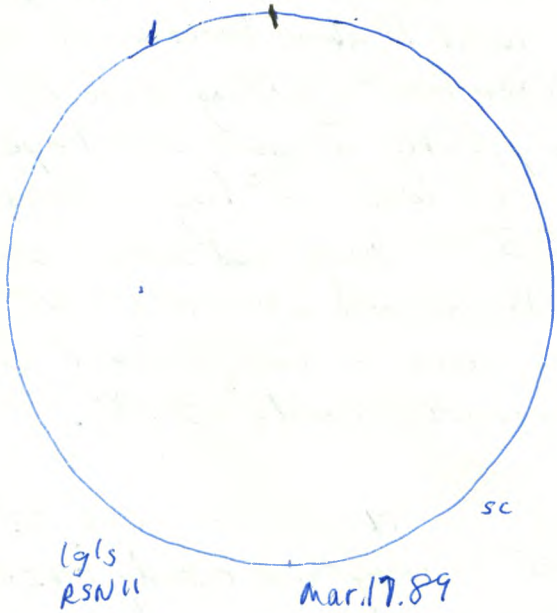
Fr-Sa Mar. 7-8 ~~9:40~~ - 10:30 UT rooftop and dock area T9.5 5(?) 7x35(b), 11x80(b).
6497 located Halley's Comet about 1° above horizon at about 10:00 U.T. (5:00 E.S.T.) for first sighting since its perihelion. It was possibly glimpsed naked eye. In 11x80 binoculars the tail was 2° long. Magnitude estimate: 2.9 to 2.5. Mars and Saturn stood out in Scorpius. Comet could be observed until 10:25 UT (25 minutes).
- tried to photograph area of Halley's Comet from the dock area. - weather cold: -24°C.

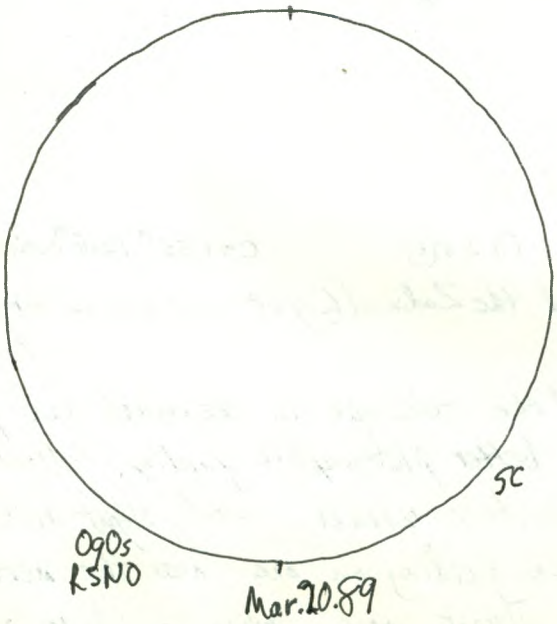
Sa. Mar. 8 17:12-17:30 UT SS T1 C-8, 32"
6497 sun 1g 5s RSN15 very thick cloudy haze possibly missed some sunspots.

Tu Mar. 11 18:55-19:00 UT SS T10 C-8, 32", 28", 20", 15.5"
6500 sun 1g 6s RSN16

T-W. Mar. 11-12 1:00-5:00 UT 00 T9 5 8(?) C-14, 55", 12.5" reticle
6501 observed and photographed the Zodiacal Light which was very clear and defined
for a long while, adjusted the telescope in azimuth and polar setting in order to obtain better photographic guiding, following the directions in the Celestron manual. - only slight drift of a star southward when guiding on one near the meridian and the equator and almost none when guiding on one







Mar.17 - about 10:00 UT
scanned southern sky
but did not see 9/Halley
in the twilight.

Mar. 20 - about 9:45 U.T.
and 9:45 U.T. - looked
from inside and saw
the southern sky
clouding up and not
very suitable for
observing.

Saw Venus low in west
F.-S. Mar 21-22 at
1:07 UT (7:07 E.S.T.)

1986

near the equator in the eastern sky.
- observed the galaxies NGC 3326 and NGC 3327 near the star γ Leonis

W. Mar 12. 9:40 - 10:20 UT. south deck T 3 (cloudy) 11x80, ne
6501 searched for Halley's Comet in Capricornus in SE near the horizon in spite of clouds.
- observed it at 9:48 UT and for about 5 min.
- tail easily seen but only 1.5° in length because of atmospheric extraction and the clouds and haze. Thereafter, the clouds became more persistent in that area of the sky about 2° to 6° above the horizon. When the Comet was first seen, it was about 1° above the trees

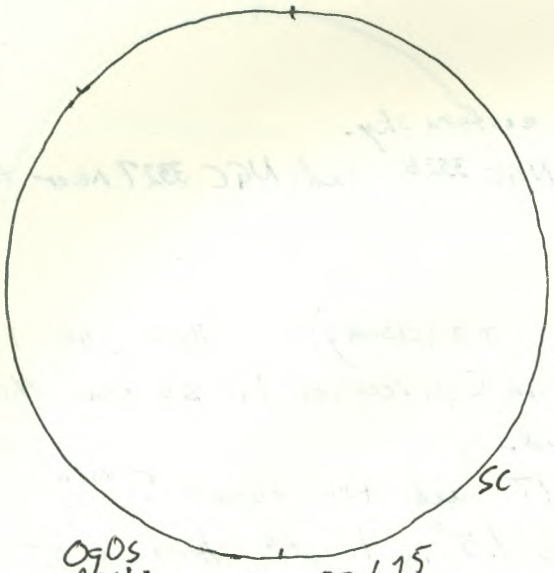
W. Mar. 12 16:20-16:25 UT SS C8, 32m, 28m, 20m, 15.5m
6501 sun Og Os RSNO

M. Mar 17 21:20 - 21:30 UT SS C-8, 32m 28m, 20m, 15.5m
6506 sun lg ls RSN 11 - one very small spot seen with difficulty

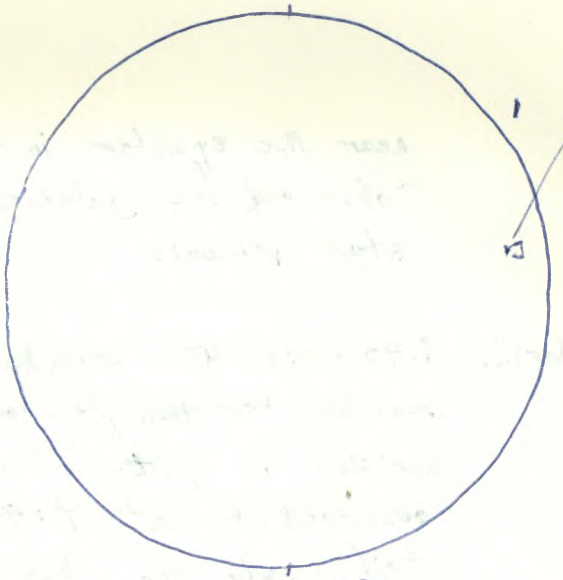
Th. Mar 20 21:25 - 21:30 UT SS C-8, 32m, 28m, 20m, 15.5m
6509 sun Og Os RSNO - sun fairly featureless

T, F. Mar 20-21 8:50 - 10:15 UT 00, and lakeside T9.5 59 C14-17m, 9, and Ac. 28m, 11x80s
- M57, Saturn, Mars - Halleys Comet. mag 2.9 (Astroscan and 11x80's)
guests to observe P/Halley: - godi Hutchins
Lee Gendreau. Julie Jones. Kathy Mavraganis
Tracy Wilson, Dave Lanns, Greg D. Rhoden, Scott Hughes
Wendy Johnson, Peter Keays
and Uncle Bob. + Bob Sampson
Peter Brohart

F.-S. Mar. 21-22 9:00 - 9:20 UT 00 57 T8 (clouds later) C-14, 32m, 16m, 9m.
Saturn and M13, but clouds did not allow observing of P/Halley
guest observers: Clara, + Henry Beissel

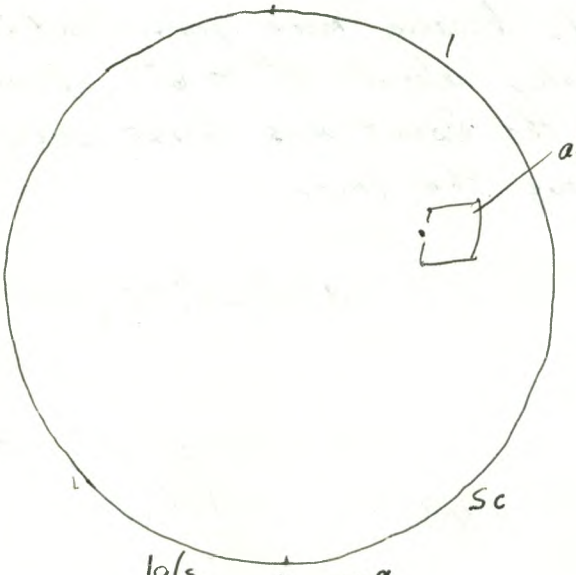


OgOs
RSNO Mar. 22.625

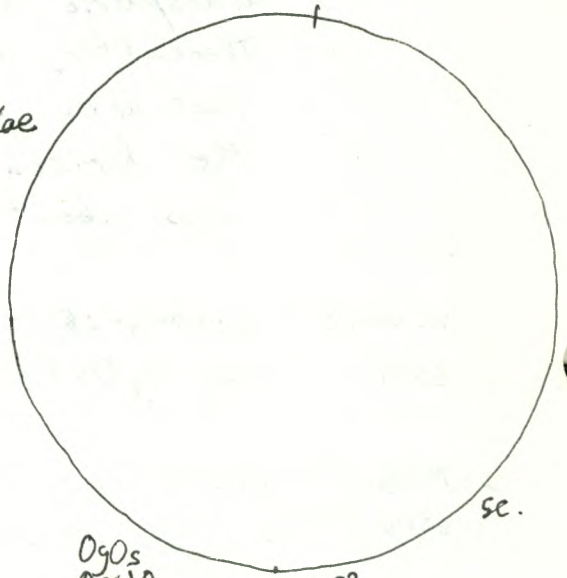


Mar. 23.89

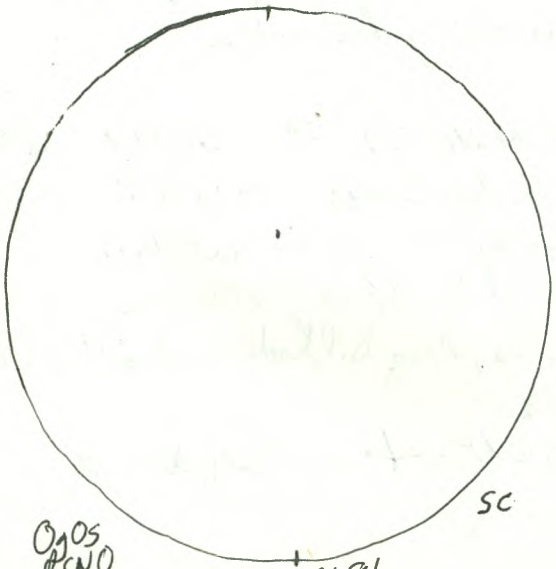
Sa-M Mar 23-24
saw Venus
23:49 UT.
(6:49 E.S.T.)



lgls
RSN11 Mar. 24.9



OgOs
RSNO Mar. 27.92



OgOs
RSNO Mar. 31.81,
Apr. 1.92
Apr. 2. 89
Apr. 4, 89

wed. Apr. 2: 9:50 - 10:15 UT
- 11x80 binocular search for P/Halley without seeing it in southern sky,
- started too late - after astronomical twilight began

1986 Sa Mar. 22 14:58-15:00 UT SS C-8, 32mm, 28mm, 20mm, 15.5mm
6511 sun OgOs RSNO some granulation seen
guest observers: Jenny Dimond, Clara Beissel

Su. Mar. 23 21:36-21:40 UT SS C-8-32mm 28mm 20mm, 15.5mm
6512 sun lg ls RSNII granulation very evident.

M Mar. 24 21:36-21:40 SS C-8, 32mm, 28mm, 20mm, 15.5mm
6513 sun lg ls RSNII granulation seen; faculae near spot
one very small spot

Th Mar. 27 22:15-22:20 table at SS. C-8, 32mm 28mm, 20mm 15.5mm
6516 sun OgOs RSNO sun low some granulation

S-M Mar 30-31 0:00-1:00 UT Read SST 9.5 1e
6520 Venus in west and spring constellations, and perhaps even the Gegenschein and some of the light bridge

M Mar. 31 19:20-19:25 UT SS C-8 32mm, 28mm, 20mm, 15.5mm
6520 sun OgOs RSNO granulation very evident with 32mm ocular

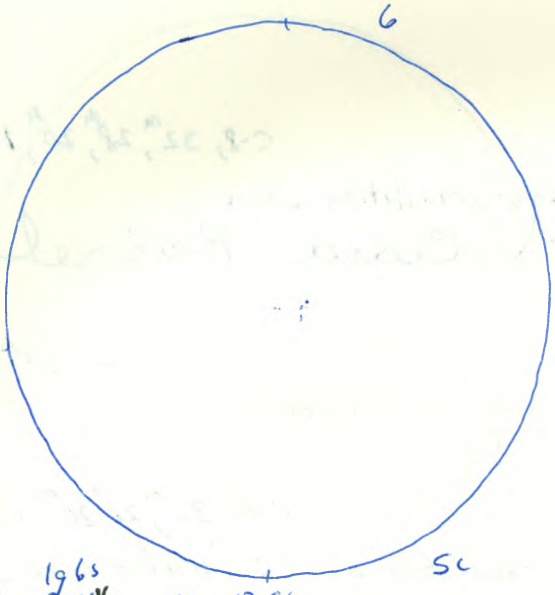
T Apr. 1 22:10-22:15 UT table at ss C-8, 32mm, 28mm, 20mm, 15.5mm
6521 sun OgOs RSNO granulation seen; sun low in west.

←

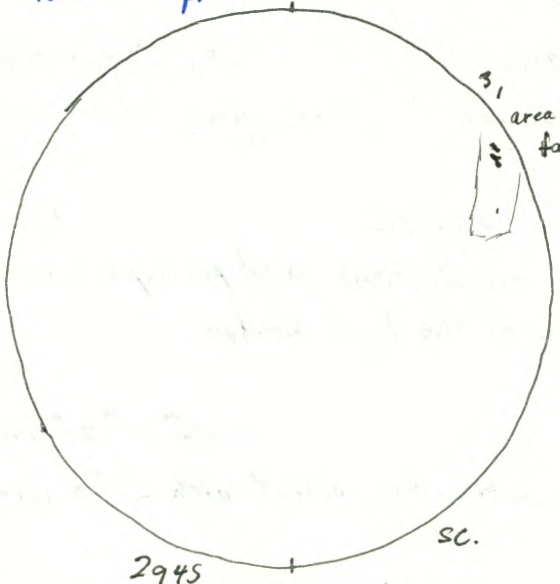
W. Apr. 2 21:24-21:30 UT SS C-8, 32mm, 28mm, 20mm, 15.5mm
6522 sun OgOs RSNO some granulation; poor seeing - boiling - good transparency

Th. Apr. 3 M 9:20-10:00 UT nearshore S 8(?) T 9.5 11x80 and Astroscan, 32mm
6523 M7 and P/Halley now in Scorpius S. of M7 - with binoculars seen only faintly because of moonlight and atmospheric extinction - tail of only ½° in 11x80 binoculars
- not definitely seen in Astroscan because of looking after the beginning of twilight
- photographed area of comet.

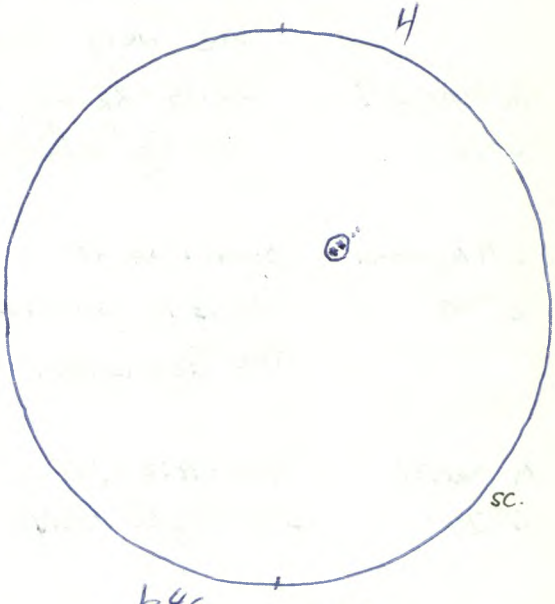
F. Apr. 4 21:33-21:38 UT SS C-8, 32mm, 28mm, 20mm, 15.5mm
6524 sun OgOs RSNO fairly featureless



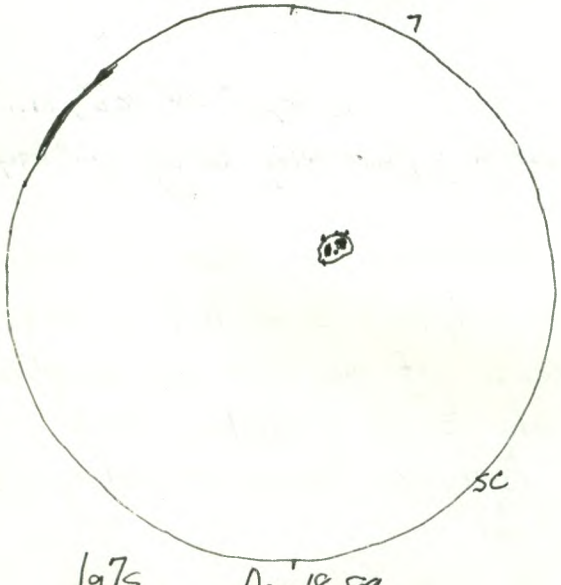
lg 6s
RSN16 Apr. 13.81



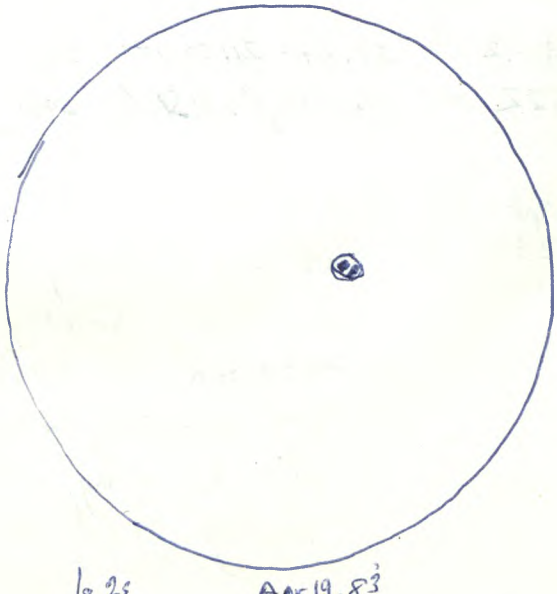
2g 4s
RSN24 Apr. 14.88



lg 4s
RSN14 Apr. 17.89



lg 7s
RSN17 Apr. 18.89



lg 2s
RSN12 Apr 19.83
3" refractor at Frontenac Mall

1986 F-S Apr 4-5 1:30-3:45 UT oo, yard s7.5 T8.5 C-14, 55", 40", 32"
6525 - M42, M43, M65, M66, NGC4565(?), M53, M35, M51
- photographed the Zodiacal Light and some constellations.

Sa Apr. 5 M 9:10-10:00 UT nearshore s9(?) T9 above 5° alt. 11x80, Astroscan 28", 19"
6525 M7, Saturn, Mars and looked for Halley's Comet with both instruments but did not have a very definite sighting because of clouds near the horizon and/or atmospheric extinction.

Su Apr. 13 19:32-19:58 UT ss C-8, 32", 28", 20", 15.5"
6533 sun 1g 6s RSN16 viewing interrupted by clouds
very small spots, later seen slightly better with 20" ocular at 100X

M Apr. 14 21:10-21:15 UT ss C-8, 32", 28", 20", 15.5"
6534 sun 2g 4s RSN24 faculae extending between the groupings

Th Apr. 17 21:25-21:30 UT SS C-8, 32", 28", 20", 15.5"
6537 sun 1g 4s RSN14 granulation apparent.

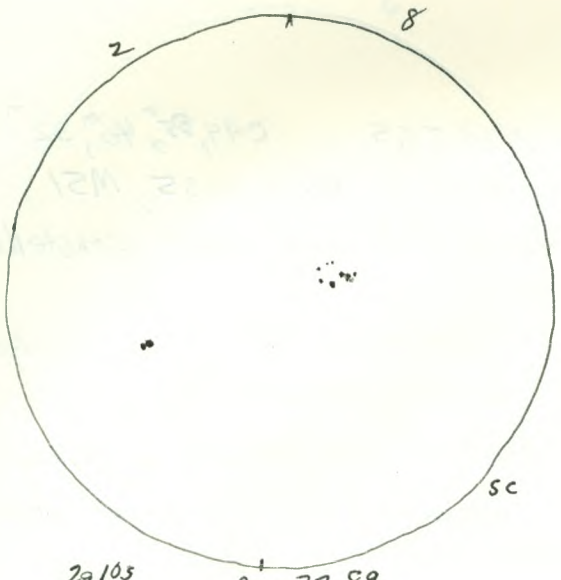
Th-F. Apr. 17-18 3:20-5:30 UT oo. and yard s 9(?) T 9.5 C-14, 36", 32", 19"; 11x80b.
6538 Halley's Comet in Centaurus with binoculars
Halley's Comet with C-14, photographing Halley's Comet and Saturn.

F. Apr. 18 21:25-21:33 UT S.S. C-8, 32", 28", 20", 15.5"
6538 sun 1g 7s RSN17 granulation seen

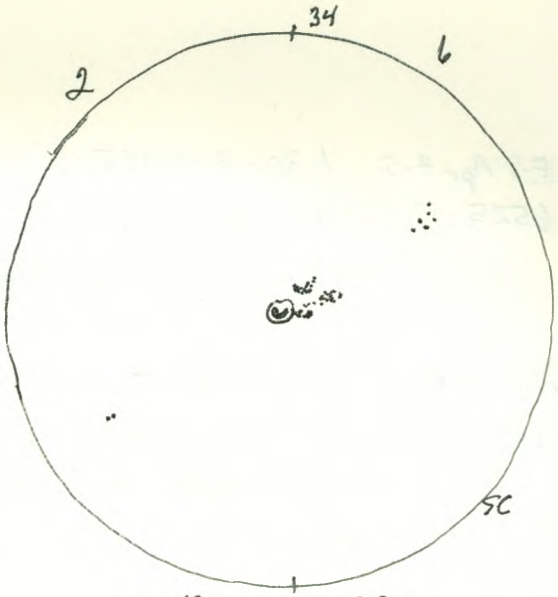
F-S. Apr. 18-19 2:45-3:10 UT yard near shore S8(?) T5 11x80b
6539 Halley's Comet, seen in spite of cirrus clouds - tail of about ½°.

Sa. Apr. 19 ~~20~~:00-~~20~~10 UT Frontenac Mall, Kingston 3" refractor, projection
6539 sun 1g 2s RSN10 Astronomy Day observation

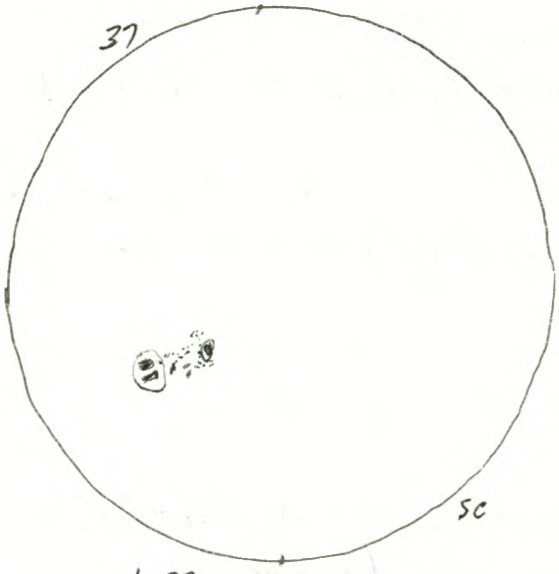
Sa-Su Apr. 19-20 1:00-5:00 UT Fort Henry parking lot Astroscan, 28", 21", 8", 11x80b
6540 Alcor and Mizar, P/Halley in 11x80 binoculars,
later Comet Halley and Saturn in Kingston Centre's 10" reflector with 32" ocular



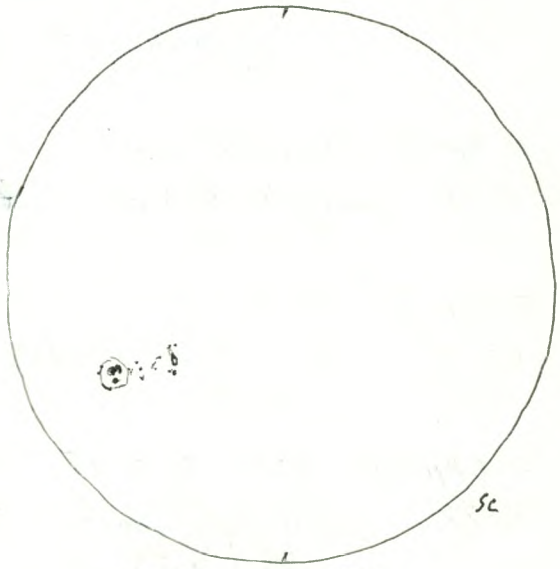
2g10s
RSN30 Apr. 22.89



3g42s
RSN72 Apr. 23.90



1g37s
RSN47 Apr. 26.81



1g34s
RSN44 Apr. 27.79

3g26s
RSN56 Apr. 28.9

1986 Tu. Apr. 22 21:30 - 21:36 UT ss C-8, 32", 28", 20", 15.5"
6542 sun 2g 10s RSN30 granulation seen

T-W. Apr. 22-23 3:00 - 3:30 UT table at ss and yard S5T5(Moon) Astroscan, 28"; 11x806
6543 looked for Halley's Comet in Corvus but did not definitely see it because the moon in Virgo was only about 30 degrees away and was very bright.

W. Apr. 23 21:35 - 21:45 UT s.s. C-8, 32", 28", 20", 15.5"
6543 sun 3g 42s RSN72 granulation seen.

W-Th. Apr. 23-24 2:30 - 3:10 UT. y s(?) T4(Moon) Astroscan, 28"; 11x806
6544 looked for Halley's Comet in Corvus but did not definitely see it because the moon in Virgo was near full and very bright.

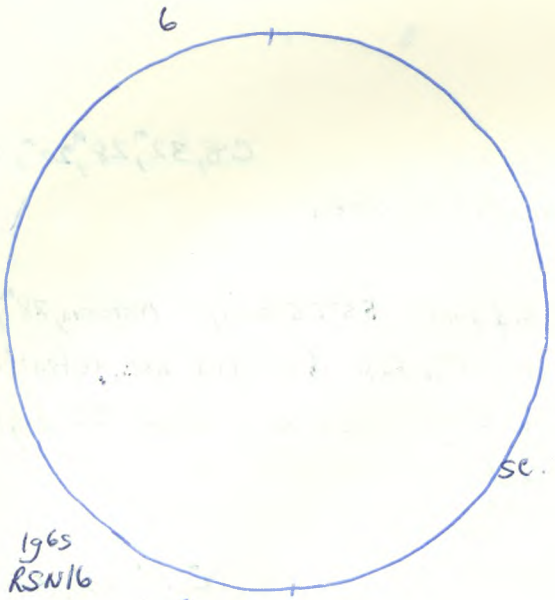
Sa. Apr. 26 19:20 - 19:38 UT ss C-8, 32", 28", 20", 15.5"
6546 sun 1g 37s RSN47 - large group.

Sa-Su Apr 26-27 1:00 - 4:00 UT oo C-14, EG, 32"" ; 11x806
6547 photographed Venus before it set
observed and photographed Halley's Comet which was near β Cra.
It was about 5.0 mag. and visible to the naked eye.

Su. Apr. 27 19:50 - 19:00 UT ss C-8, 32", 28", 20", 15.5"
6547 sun 1g 3# RSN44

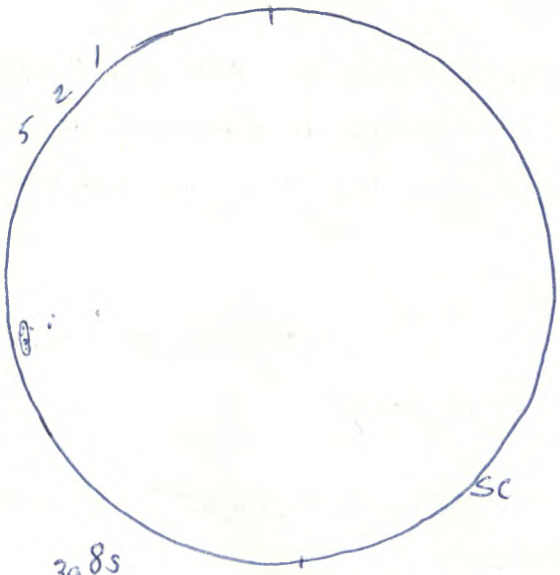
S-M Apr 27-28 1:30 - 5:00 UT oo s8T9 C-14 32" 11x806
6548 observed and photographed Halley's Comet using Fujichrome P1600D film. The Comet was about mag 5.0 and visible to the naked eye especially with averted vision

M Apr. 28 21:40 - 21:48 UT ss C-8, 32", 28", 20", 15.5"
6548 sun 3g 26s RSN56 spots clearly seen with 28" at 71.4X (apparently little atmospheric turbulence; granulation seen



1965
RSN16

Apr. 30, 58



1985
RSN 38

May 2. 86

Snow: Fri. morning
May 2.

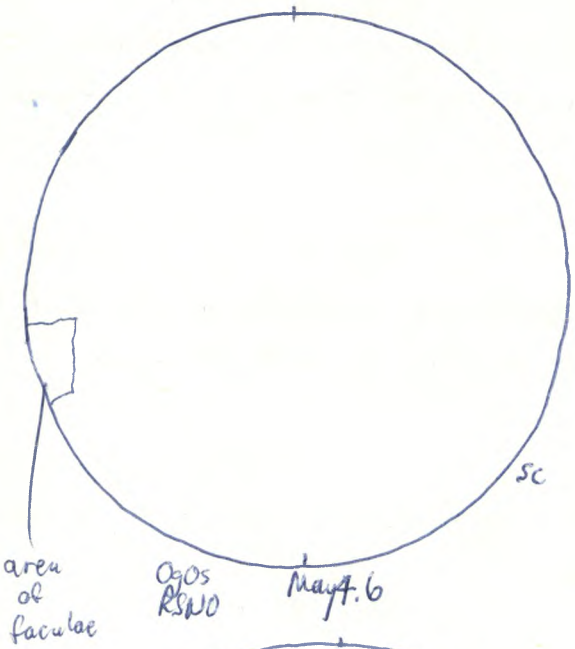
1986 M-T Apr. 28-29 1:40-5:20 UT 00, ss S8T9.5 C-14, 32mm 55mm, 40mm; 11x80
6549 - superb transparency - Halley's Comet about halfway between α and β Cra was easily seen naked eye at about 5.0 magnitude. It was superb in 11x80 binoculars with a wide tail of 4½° and a tail of about 2° in the Astroscan; excellent faint tail also in C-14 using 55mm and 40mm eyepieces.
- photographed Halley's Comet, M51, M57, M13 areas using Fujichrome P1600D film.
- Zodiacal Light was excellent with very possible visibility of the light bridge through northern part of constellation Leo and to Gegenschein in constellation Virgo. Superb transparency.

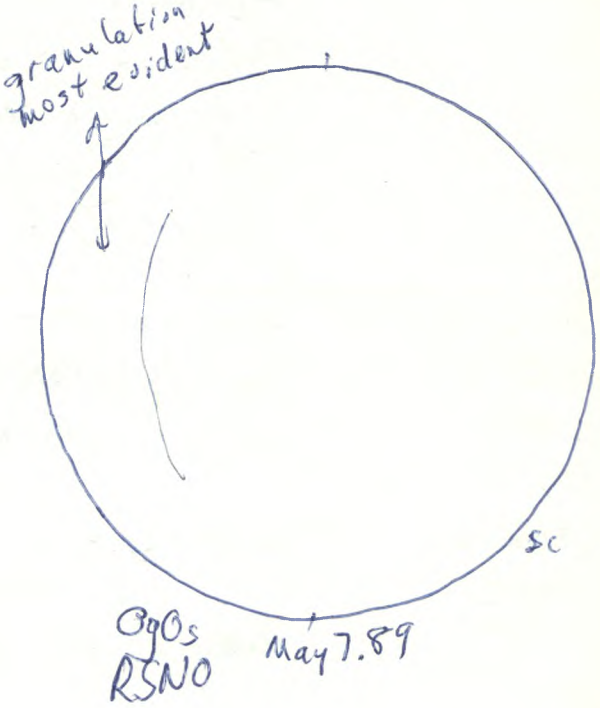
W. Apr. 30. 21:05-21:15 UT ss T=2-5 (cloud) C-8, 32mm, 28mm, 20mm, 15.5mm
6550 sun 1g 6s RSN 16 - spots seen with 28mm ocular but later not seen with the other oculars nor with it again.

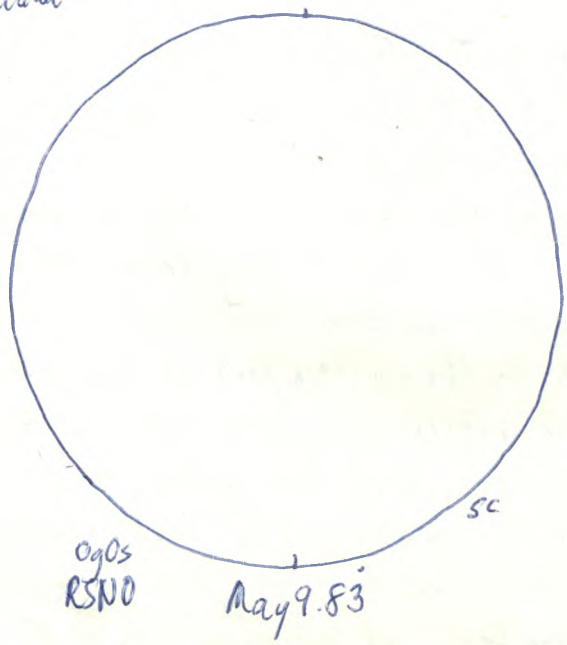
F May 2. 20:40-20:46 UT ss C-8, 32mm, 28mm, 20mm, 15.5mm
6552 sun 3g 8s RSN 38 granulation evident, faculae in area of the spots.

F-S. May 2-3 2:20-3:00 UT y s 8(?) T 7-5-1 (varying, cloud) 11x80b, ne
Halley's Comet, SE of υ Hydrae, seen easily in 11x80 binoculars (approx mag 5.0) in spite of haze.
From 2:20 UT until 2:30 UT there was a bright band Aurora about 5° to 10° wide extending from the western horizon to the eastern horizon. It passed overhead south of the zenith in the northern part of the constellation Leo and in Leo Minor. There was little colour in it; it was almost white, with perhaps a small bit of yellow. At about 2:35 there were about 4 very pronounced bars or "steps" in the then fading band, the bars being in the eastern part of the constellation Leo and extending over toward the star, Arcturus. The band faded from about that time, though

Snow: Sat. evening May 3, and remaining on ground on Sun. May 4.







1986

I tried to photograph it. By 3:00 UT (11:00 E.D.T.) it had virtually disappeared and the sky had clouded over. Earlier it was apparent that there was Auroral glow in the north over a large area but no spikes were seen; clouds prevented the northern glow from being seen

SS May 3-4 3:50-3:55 UT y S 8(?) T 9 11x80, ne
6554 Halley's Comet very near the star ν Hydrae with the tail extending eastward past the star. In 11x80 binoculars the tail was about 3 degrees long and perhaps widening further from the comet and becoming more diffuse. With the naked eye it was possible to see the comet "surrounding" the star ν Hydrae because of good transparency.

. Su May 4 14:10-14:15 UT SS T-5 (cirrus) C-8-32", 28", 20", 15.5"
6554 sun Og Os RSNO some faculae seen poor transparency
Granulation seemed to be there but cloud did not make it as distinct as it should have been.

. W May 7 21:15-21:20 UT SS T-9.5 C-8, 32", 28", 28" 15.5"
6557 sun Og Os RSNO granulation seen especially near W. limb

W-T May 7-8 2:00-2:30 UT y S 7 T(5-9)(par. cloud) 11x80b; ne
- Halley's Comet - tail of 2° - 2½° in 11x80 binoculars barely seen naked eye, with averted vision
- bright glowing Aurora in N to NE and fainter glow in N.W. Excellent transparency in areas of sky not clouded

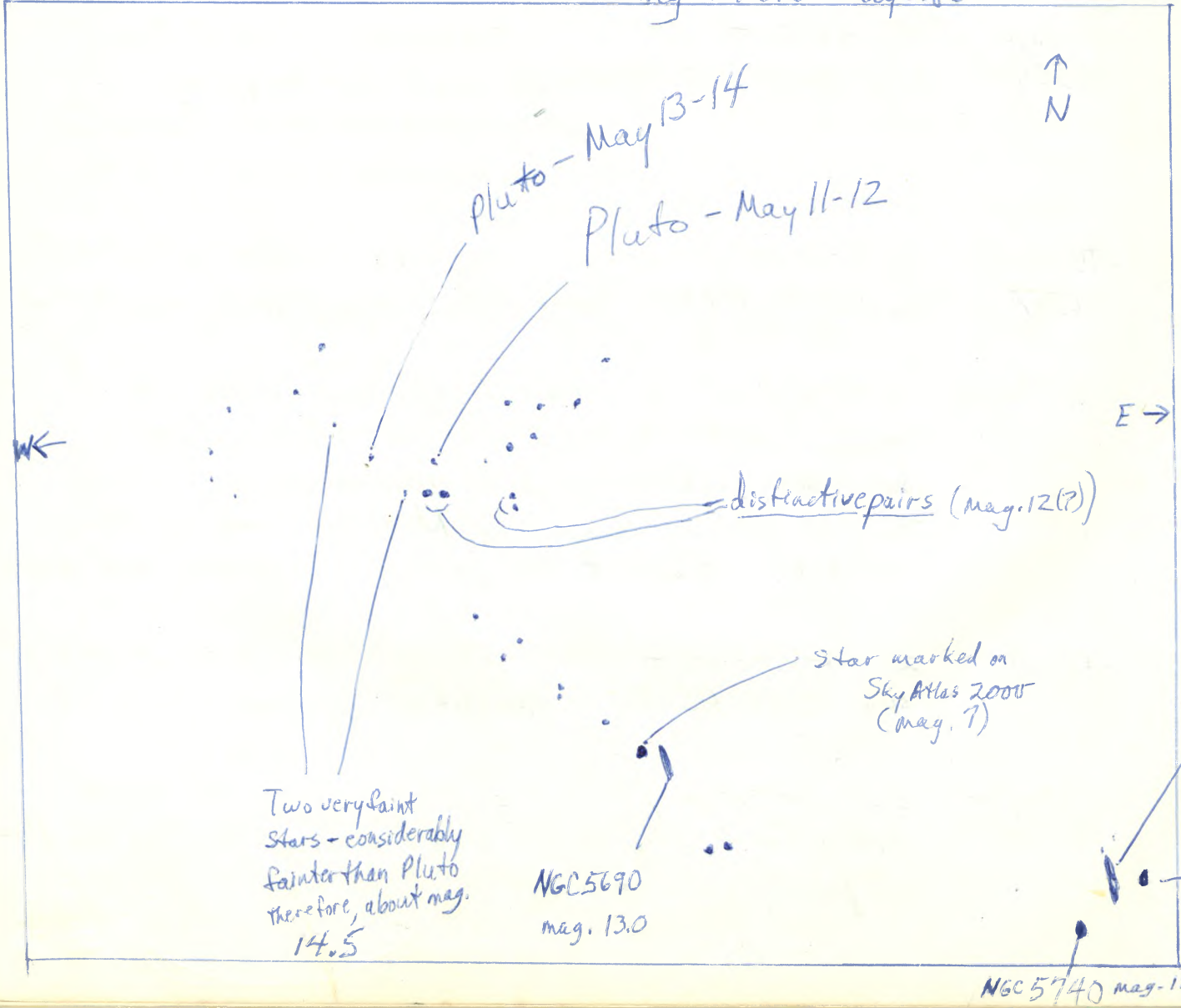
. F May 9 20:00 UT - 20:05 UT SS C-8, 32", 28", 20", 15.5"
sun Og Os RSNO granulation apparent.

F-S May 9-10 3:55 - 4:05 UT y S 8(?) T 8 11x80b
Halley's Comet seen easily in 11x80 binoculars - tail less than 1° - not perfectly good transparency

0905 RSNO

May 10.78
and
May 11.64
and May 12.82
and May 13.86

Observing Pluto May 1986 S.C. View



1986 S May 10 18:50-1855UT SS C-8, 32", 28", 20", 15.5"
6560 sun Og Os RSNO granulation evident.

S-S May 10-11 1:00-3:15UT oo S 7.5 T 4-8.5 (cloudy) 11x80b; C-14, 19"
6561 - photographed moon and Venus in N.W.
- with 11x80b. observed Halley's Comet
- with C-14 observed γ Leonis, Venus, M51 and Saturn in Scorpius. Thick intermittent clouds hindered observing.

Su May 11 15:25-15:28UT SS C-8, 32", 28", 20", 15.5"
6561 sun Og Os RSNO

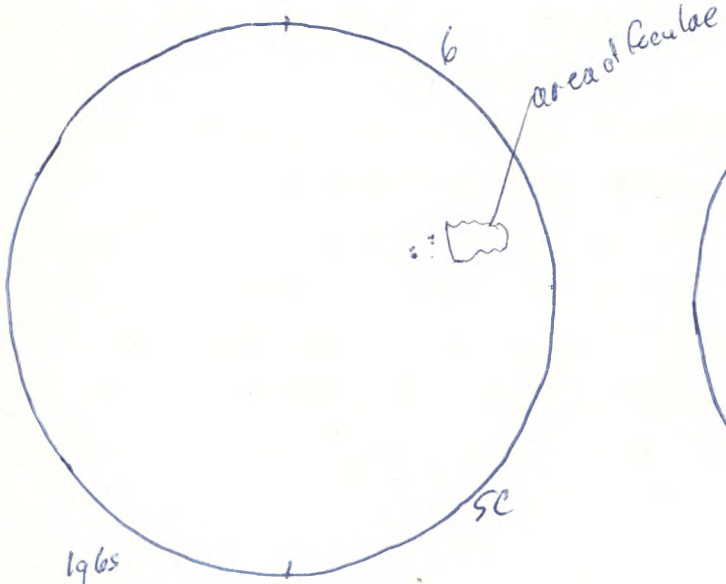
S-M May 11-12 1:15-6:15UT γ, oo S8 T9 7x35; 11x80b; C-14, 32", 13", 30", 19", 26"
6562 - observed Venus and crescent moon with C-14
- photographed area of Venus and crescent moon with 200mm lens unguided.
- observed Halley's Comet with 7x35 binoculars
- photographed area of Halley's Comet with 200mm lens guided.
- observed area of Pluto NW of 109 Virginis and very probably saw the planet north of two faint stars. Three galaxies were seen - NGC 5746, NGC 5740, and NGC 5690.
- observed M51, M57, M13, M92, M4, Saturn, and Mars.

M May 12 19:50-19:53UT SS C-8, 32", 28", 20", 15.5"
6562 sun Og Os RSNO

M-T May 12-13 2:00-2:05UT γ S8.5(?) T9 11x80b
Halley's Comet - only about ½° of tail seen in the binoculars.

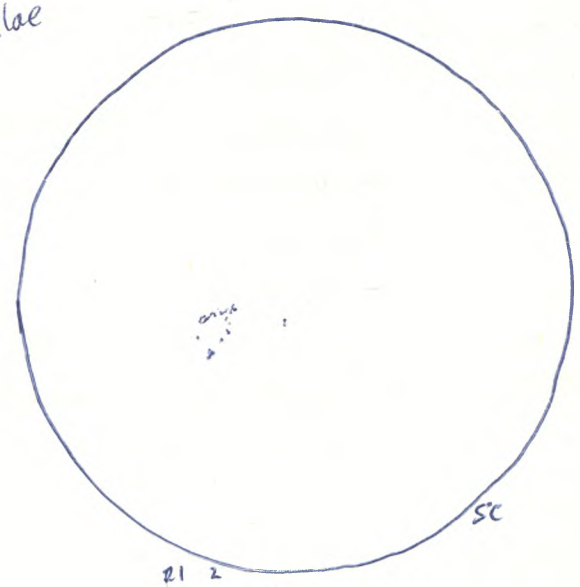
T May 13 20:48-20:52UT SS C-8, 32", 28", 20", 15.5"
6563 sun Og Os RSNO granulation very apparent.

T-W May 13-14 2:00-2:10UT and 5:30-8:00UT oo S8 T9.5 7x35b, C-14, 32", etc.
6564 - observed Halley's Comet in the evening with 7x35 binoculars,



1g6s
RSN16

May 17.74



2g23s
RSN43

May 25.71

2g3s
RSN22

May 28.83

seeing tail of only about ½°
- after moonset - observed area of Pluto very carefully noting that it had moved very noticeably since two days before. (See diagram opposite previous page.) Several stars fainter than the planet were noted. - studied carefully the maps in Sky and Telescope, Jan. 1986, p. 69 and in the Handbook p. 120. "Star-hopped" from star 109 Virginis and observed the galaxies NGC 5746, NGC 5740, and NGC 5690
- observed Jupiter with 11x80 binoculars
- photographed area of Summer Milky Way in Sagittarius and in Cygnus.
- observed until morning twilight. Various oculars were used to observe Pluto and its area: 32mm K, 32mm König, 36mm Plössl, 40mm 2", 55mm 2", 19mm, 26mm, 17mm, 28mm, 20mm, 13mm Nagler, 9mm Nagler.

1986 Sa May 17 17:50-17:55 UT SS T7 (Haze) C-8, 32mm, 28mm, 20mm, 15.5mm
6567 Sun 1g 6 SRSN 16 - faculae near spots

Su May 25 17:00-17:03 UT SS C-8, 32mm, 28mm, 20mm, 15.5mm
6575 sun 2g 235 RSN 43

Su-Mo May 25-26 2:00-3:20 UT SS S9 T8 C-8, 32mm; 11x80b; Astrocam 28mm
6576 Halley's Comet in all 3 instruments but scarcely any tail seen at about 8th magnitude; Saturn; Cor Caroli; Albireo; Mizar

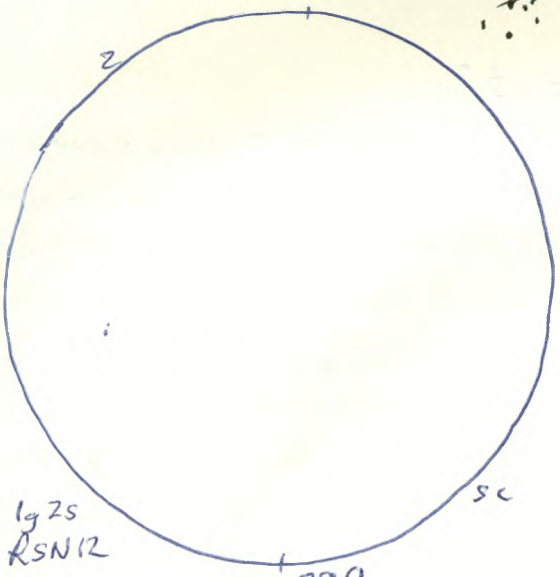
W May 28 20:00-20:05 UT SS C-8, 32mm, 28mm, 20mm, 15.5mm
6578 sun 2g2s RSN 22 - granulation very apparent - faculae near western limb.

W-T May 28-29 2:00-6:20 UT SS and OO T9 S9 C-8, 32mm, 19mm and C-14, 32mm, 15.5mm, 9mm
C-8: Halley's Comet about mag 8.5, very little tail, M13, M57, Saturn, Albireo, ε Lyrae
C-14: M51, M13, M92, M57 (and possible glimpses of central star with 5mm ocular), galaxy near M13, M4, Cor Caroli,

Pluto June 10: 4:24 UT

Pluto June 9: 4:01 UT.

May 28-29
5:00 UT May 29.



lg 2s
RSN12

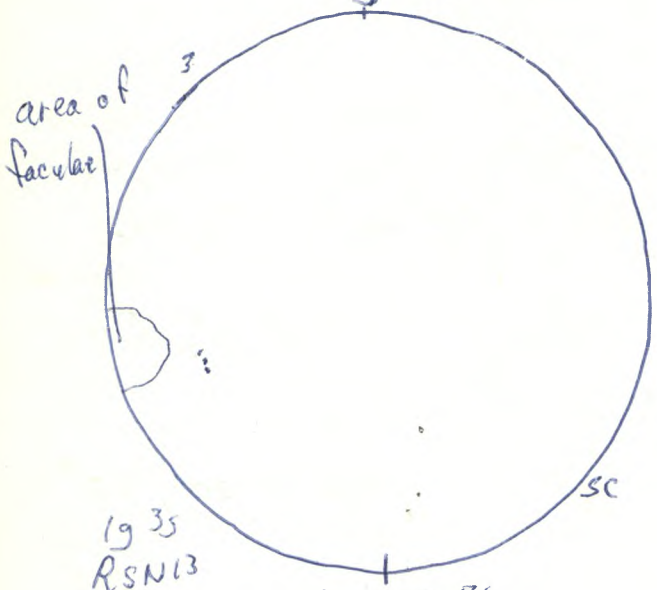
May 29.9

Pluto

star fainter than Pluto

Pluto: June 3: 4:25 UT

Pluto June 4: 3:50 UT. Pluto again in Virgo, sc view



lg 3s
RSN13

May 30. 86

All planets except Mercury Seen.

All planets seen

sc.

ε Lyrae, area of Pluto and probably Pluto, NGC 5746, NGC 5740, NGC 5690, Mars, M101, Saturn

1986 Th. May 29 21:45 - 21:50 UT SS T5 (cloud) C-8, 32", 28"
6579 Sun 1g 2s RSN12

F May 30 2035 - 20:40 UT SS C-8, 32", 28", 20", 15.5"
6580 Sun 1g 3s RSN13 faculae near W. limb

M Jun 2 22:00 - 22:05 UT SS C-8, 32", 28", 20", 15.5"
6583 Sun 0g 0s RSN0 granulation seen and probably some faculae near E. limb

M-T Jun 2-3 2:00 - 6:35 UT OO S9 T9 C-14, 30", 19", etc.; 11x80b; 7x35b.
6584
- Venus in evening and search for Mercury (11x80b.)
- Halley's Comet (about 8th mag.) - very little tail seen (11x80b)
- M51, M27, M57 (and possible intermittent glimpses of central star at high power), Pluto, Uranus, Neptune, Collinder 399 (cluster and nearby), Mars, Saturn, and at end of session Jupiter in binoculars. ∴ all the planets seen except Mercury. Mars was excellent with polar cap and dark marking seen.

T-W Jun 3-4 2:00 - 7:02 UT OO S9 T9 (some cloud) C-14, 55", 30", 9"; 11x80b
6585
All the planets observed:
- Mercury: 2:14 - 2:16 UT 5" ocular to confirm disk. (!)
- very low in N.W. - first time seen on current elongation.
- Venus: up to 3:00 UT 5" ocular
- Pluto 3:50 UT 30" ocular
see field drawing (left page.)
- Uranus 4:00 UT 30", 9"
- Saturn 4:09 UT and at least 4 moons 8", 30"
- Neptune 4:25 UT 30" 9"
very noticeable movement from previous night.
- Mars 6:24 UT 9", 30"
polar cap and dark markings detectable
- Jupiter 7:02 UT 55", 30", 9"
(long wait for Jupiter to be high enough to observe)

all the planets in
1 night with
same instrument.

- also observed M51, M27, M57, Veil Nebula

1986 W Jun 4 22:10 - 22:15 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
6585 sun Og Os RSNO granulation seen.

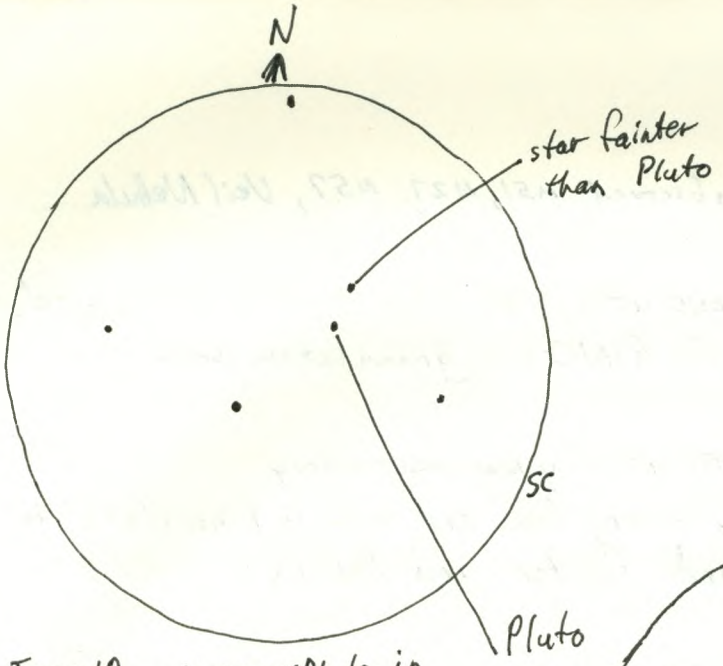
Th Jun 5-6 1:44 - 1:50 UT y near observatory 11x80b
6587 Mercury - very low and seen in binoculars in NW below (2)
Venus and Castor and Pollux

F Jun 6 19:55 - 20:00 UT SS T7 (cloud) C-8, 32^m, 28^m, 20^m, 15.5^m
6587 sun Og Os RSNO granulation seen.

Su Jun 8 19:17 - 19:22 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
6589 Sun Og Os RSNO granulation seen

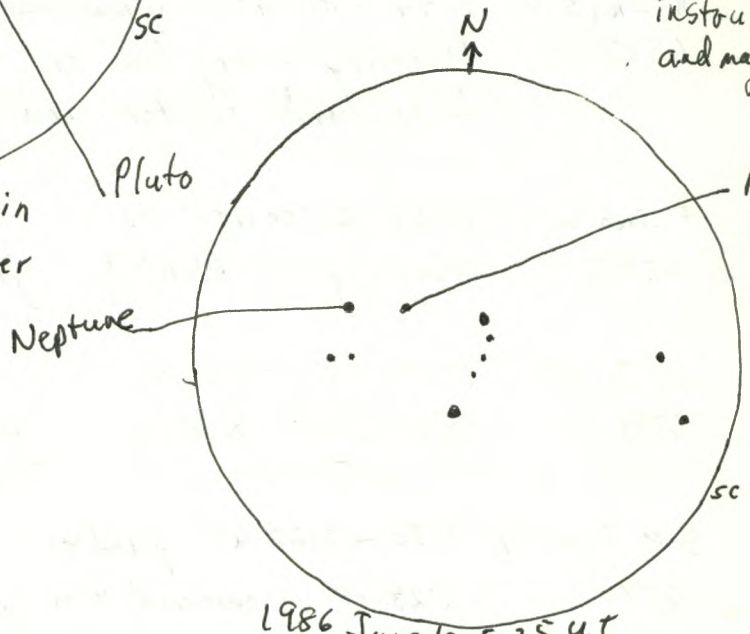
S-M June 8-9 1:20 - 7:20 UT y and oo S9 T9.5 11x80b and C-14, 30^m, 40^m, 13^m, 9^m
6590 1:24 UT - observed Mercury in NW below Castor + Pollux low (3)
and about 3° from thin crescent moon
1:38 UT - observed Mercury in C-14, 30^m
1:42 UT - observed Venus in C-14, 30^m
1:45 UT - observed Saturn in C-14, 30^m
observed 3 galaxies NGC5746, NGC5740, NGC5690
4:00 - 4:16 UT - observed Pluto in C-14, 30^m, 55^m, 40^m, 13^m.
4:30 UT - observed Uranus in C-14, 30^m, 9^m
4:46 UT - observed Neptune in C-14, 30^m, 9^m
observed M51, M27, M57, M11, Veil Nebula,
- photographed areas near Milky Way with new Fujichrome P1600D film
7:14 UT observed Mars noticing dark markings
7:16 UT observed Jupiter
Beginning of morning astronomical twilight was evident before 7:00 UT which was the time of its predicted beginning.

M Jun 9 21:10 - 21:15 UT SS C-8, 32^m, 28^m, 20^m, 15.5^m
6590 sun Og Os RSNO granulation seen.



1986, June 10, 4:26 UT. Pluto in 13m Nagler

observed all the planets with same instrument and magnification



1986 June 10 5:25 UT field of Neptune

Jupiter (SC)

1986 M-T June 9-10 6:25 - 7:00 UT 00 S9 T9 11x80b and C-14, 30", etc.

6591 - 1:26 UT - observed Mercury in 11x80b. (4)

- 1:37 UT - observed Mercury in C-14, 30"

- 1:38 UT - observed Venus in

- 1:40 UT - observed Venus in C-14, 30"

- 1:48 UT. observed Mercury naked eye - seen easily

4448 - 4:06 UT. observed NGC 4448, galaxy near γ Com and

4559 - 4:14 UT. NGC 4559, edge-on galaxy

- 4:26 UT - observed Pluto in C-14, 30", 55", 40", 13", 9" (8)

omit (- observed NGC 4494 and NGC 4565 both near 17 Com) see below *

NGC 5194 - 4:52 UT - observed M51 (NGC 5194, 5195) and

5195 NGC 5198 a galaxy just south of M51

5198

NGC 4494 - 5:10 UT. - observed NGC 4494 and NGC 4565 near 17 Com *

4565 - 5:21 UT - observed Uranus with C-14, 30", 9" - good disk.

- 5:25 UT - observed Neptune with C-14, 30", 9" - very noticeable movement since last seen.

6207 - 5:44 UT - observed M27, M57, M13 and NGC 6207

- 5:50 UT - observed Saturn in C-14, 30", 9"

- 5:55 UT - observed Mars in C-14, 9", 30"

- - photographed area of M8 and M20

- 6:45 UT - observed Jupiter

Sa Jun 14 18:22 - 18:25 SS C-8, 32", 28", 20", 15.5"

6595 Sun Og Os RSNO granulation seen.

Su Jun 15 17:10 - 17:15 UT SS C-8, 32", 28", 20", 15.5"

6596 Sun Og Os RSN some granulation visible

Tu Jun 17 20:25 - 20:30 UT SS C-8, 32", 28", 20", 15.5"

6598 Sun Og Os RSNO

T-W June 17-18 1:35 UT Mercury - seen below Castor in NW. 11x80b (5)

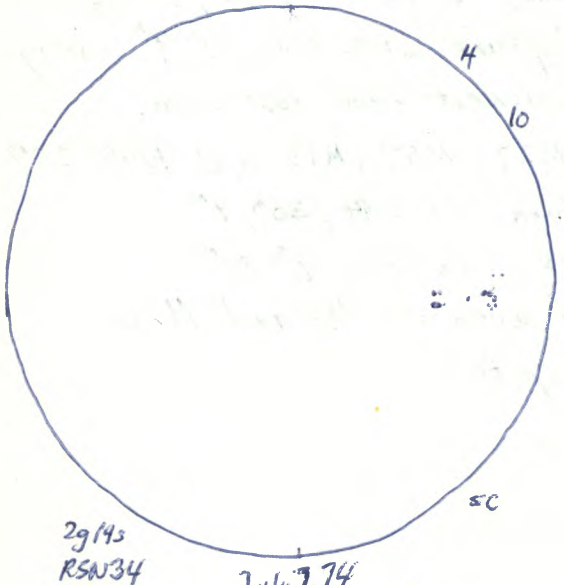
6599

W Jun 18 19:50 - 19:55 UT SS C-8, 32", 28", 20", 15.5"

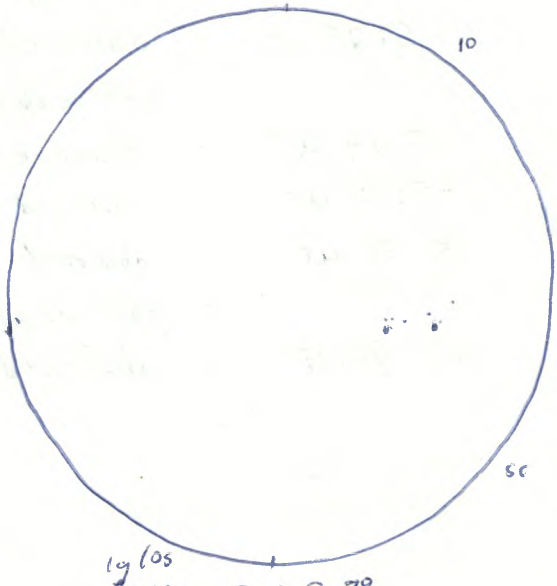
6589 Sun Og Os RSNO

F Jun 20 21:00 - 21:05 UT SS C-8, 32", 28", 20", 15.5"

6601 sun Og Os RSNO granulation evident.



2g14s
RSN34 July 7.74



1g10s
RSN20 July 8.78

2g18s
RSN 38 July 9.76

1986 F-S. Jun. 20-21 1:43 UT y 7x35b

6602 Mercury in NW below Venus and Castor (6)

2:05 - 2:10 UT

Mercury seen nakedeye and with binoculars

Sa Jun 21 18:55 - 18:58 ss C-8, 32", 28", 20", 15.5"

6602 sun 0g 0s RSNO granulation evident

Sa-Su Jun 21-22 2:05 UT y partly cloudy 7x35b

6603 Mercury seen below some clouds in NW; Venus (ne.) (7)

M Jun 23 20:15 - 20:20 UT ss C-8, 32", 28", 20", 15.5"

6604 sun 0g 0s RSNO granulation seen

M-T Jun 23-24 1:50 - 1:55 UT y T9.5 7x35b

6605 Mercury in ~~NW~~ below Venus and to the right of it

2:05 UT

Mercury seen ne (8)

Th. Jul 3, 20:10 - 20:18 UT ss C-8, 32", 28", 20", 15.5"

6614 sun 0g 0s RSNO

M July 7 17:45 - 17:50 UT ss C-8, 32", 28", 20", 15.5"

6618 sun 0g 1s RSN34

M-T July 7-8 4:00 - 4:25 UT y S8.5(?) T9.5 ne

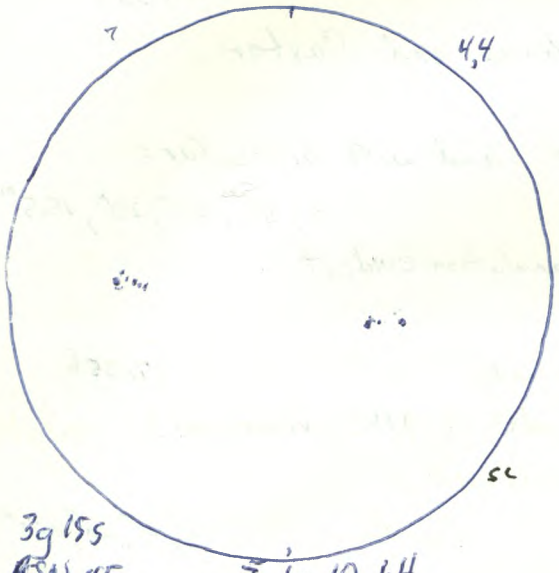
- observed naked-eye under superb transparency - Mars very bright (about -2.6 mag.), Milky Way very well defined with dark lanes very clearly seen.

T July 8 18:40 - 18:45 UT ss C-8, 32", 28", 20", 15.5m

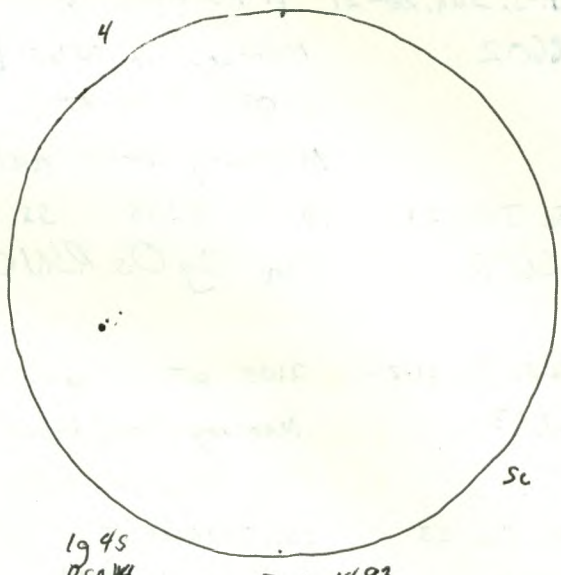
sun 1g 10s RSN20

W July 9 18:15 - 18:18 UT ss C-8, 32", 28", 20", 15.5"

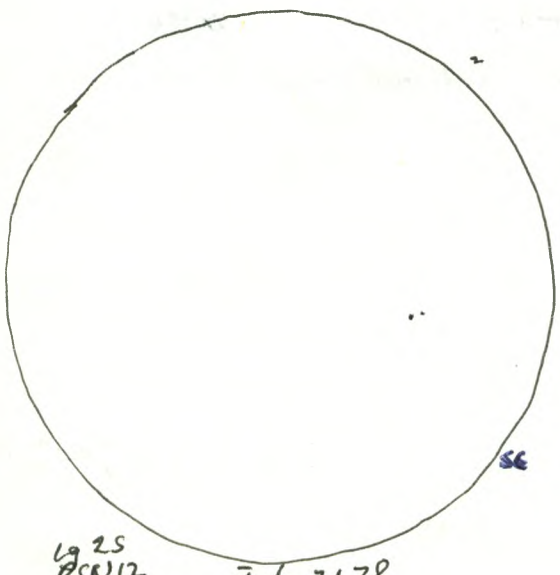
sun 2g 18s RSN38 some spots very faint



3g 15s
RSN 45 July 10.64

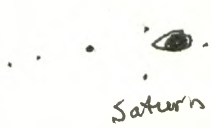


lg 4s
RSN 4 July 14.93

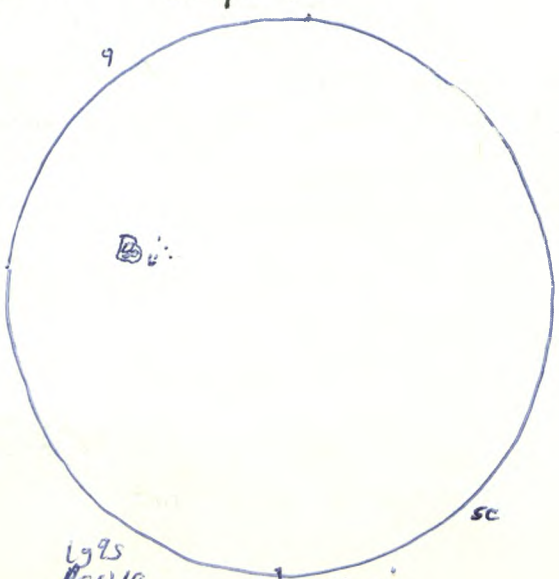


lg 2s
RSN 12 July 21.78

July 22-23



both polar caps seen



lg 9s
RSN 19 Aug. 4. 83

1986 W-T Jul 9-10 4:30-5:30 UT y S 8(?) T 9 7x35 b
Milky Way, M13, M22, Col 399, Jupiter
Mars - very bright in Sagittarius

Th Jul 10 15:30 - 15:35 UT SS C-8, 32", 28", 20", 15.5"
Sun 3g 15s RSN 45 - one large group not seen yesterday

T-F Jul 10-11 4:30 - 5:30 UT North Syracuse S 9(?) T 6.5 7x50 b
binocular observations of M22, M13, M27, Jupiter and 4 moons, M8, M20,
Col 399, Alcor and Mizar - observed with
Dennis Faber

M Jul. 14 22:30 - 22:35 UT y C-8, 32", 28", 20", 15.5"
sun 1g 4s RSN 14 3 of the spots very small and 2 very faint.

S-M July 20-21 3:30 - 4:30 UT SS S 7 T 5 (Full Moon) C-8, 19", 12", 5", 9" (2")
Mars - very large and bright, Alcor and Mizar, Saturn,
M57, Jupiter, and Full Moon.

M July 21 18:50 - 18:55 UT SS C-8, 32", 28", 20" 15.5"
sun 1g 2s RSN 12 graanulation seen

T-W July 22-23 1:45 - 3:20 UT 00 S 8 T 7 (Moon) C-14, 19", 32", 9"
Saturn, Mars (large) M51, M57, M13, M92, Co Caroli,
lunar craters

W. July 23 16:35 - 16:40 UT SS C-8, 32", 28", 20", 16.5"
sun 0g 0s RSN 0

Tu-Fr July 24-25 2:30 - 3:20 UT y T 6 (Haze, cloud) S 8.5 11x80 b.
Mars, area of Deneb, Col 399, M22, other areas of the sky.

M Aug. 4 20:00 - 20:05 UT SS C-8, 32", 28", 20", 15.5"
6646 Sun 1g 9s RSN 19

Mars

Polar caps seen

The object may have been a satellite near the upper atmosphere.

1986 M-T Aug. 4-5 1:50 - 3:10 UT oo 59 T 9-0 (cloud) C-14, 19m and 4m for M57
Mars (see diagram), M57, σ Herc, M13, M92
Clouds and some rain at about 3:10 UT. Then weather cleared after roof was closed
3:15 UT - 4:00 UT y 59 T 9 11x80 and 7x35b
Col 399, M27, many Milky Way objects.

S-S Aug. 9-10 2:45 - 5:30 UT oo 58 T 9 (Dew bad!) C-14, 32m, 19m, (and 5m for M57)
M11, M13, M57, M27, M51, M22, NGC 6207 (near M13), Col 399, NGC 6802 (near Col 399), ε Lyrae, M8, NGC 7331, Stephan's Quintet, Mars, Saturn, Jupiter, M31, M32, M110, β Cyg, M33, M92, σ Her, h + χ Persei, Veil Nebula, M10, M15.
Venus and lunar craters were observed in early evening (about 2:00 U.T.)

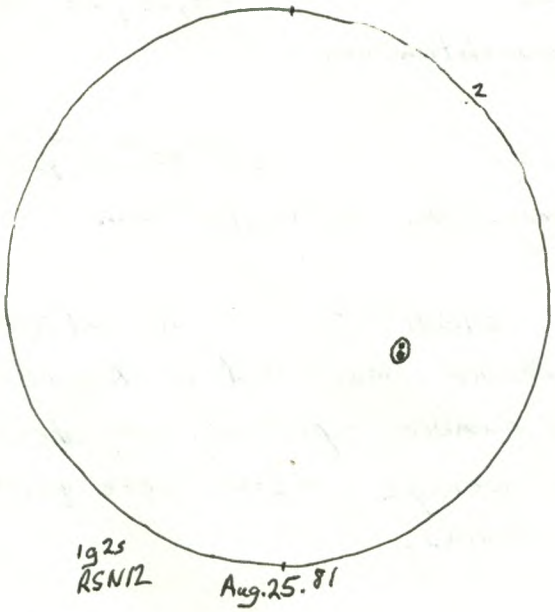
Su Aug. 10 17:35 - 17:40 UT ss C-8, 32m, 28m, 20m, 15.5m
sun Og Os RSNO - granulation seen.

M. Aug. 11 20:20 - 20:22 UT ss C-8 32m, 28m, 20m, 15.5m
sun Og Os RSNO granulation and faculae seen

M-T Aug. 11-12 2:30 - 5:50 UT y 57.5(?) T 9.5 ne and 11x80 and 7x35b.
observing Perseid Meteor Shower (Max. listed as Aug. 12 - 12 hr. U.T.)
-generally not great in numbers - probably only about 25-30 per hour seen on the average - some were quite bright and left distinct trains.

T. Aug. 12 15:00 - 15:20 UT ss C-8 - 32m, 28m, 20m, 15.5m
sun Og Os RSNO

T-W Aug. 12-13 1:30 - 3:15 UT periodically Read 5(?) T 8 ne
observed several bright Perseids even though there was a quarter moon.
Beriung as cloud appeared as small Omag. object 1° N of λ Sag. at 2:00 U.T., slowly expanded to 5° in width and drifted eastward through N. part of Pegasus lasting about 10 min.



Ig 25
RSN12 Aug. 25. 81

1986 W. Aug. 13. 18:28-18:34 UT SS C-8, 32", 28", 20", 15.5"
sun Og Os RSNO granulation seen.

W-T. Aug. 13-14 2:30 - 4:00 UT OO C-14, 19"
observed and photographed Moon, Saturn, Mars and observed Jupiter and M57.

Su. Aug. 17 21:45 - 21:50 UT SS C-8, 32", 28", 20", 15.5"
sun Og Os RSNO granulation evident.

M. Aug. 18 21:20 - 21:25 UT SS C-8, 32", 28", 20", 15.5"
sun Og Os RSNO granulation seen

M-T. Aug. 18-19 3:00 - 3:20 UT SS (Full Moon) Astroscan, 32", 19", 15", 8"
Jupiter, Mars, Lunar Craters, M13

T. Aug. 19. 20:40-20:45 UT SS C-8, 32", 28", 20", 15.5"
sun Og Os RSNO granulation seen.

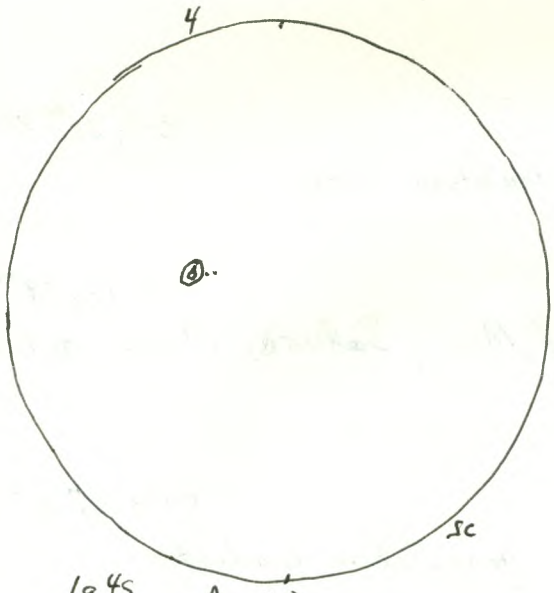
T-W. Aug. 19-20 1:30-2:00 UT SS (Full Moon) Astroscan, 32", 19", 17", 8"
Saturn, M13, M57, Mars, Jupiter, Mizar and Alcor

S-M. Aug. 24-25 1:00-2:00 UT N. Syracuse s8T4 Questar 3½"
Mars, Saturn, Jupiter, Alcor and Mizar

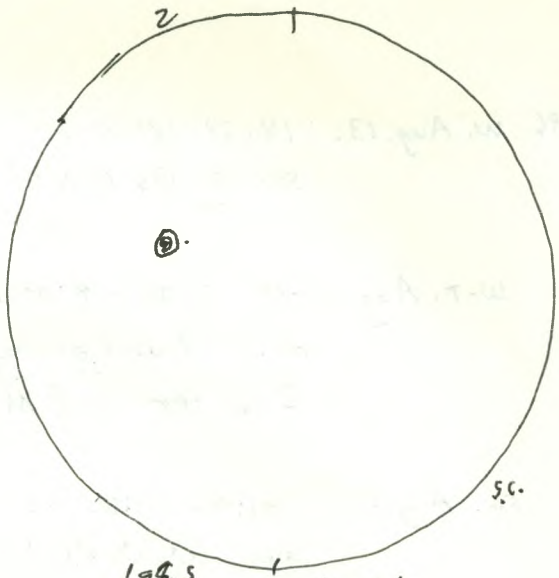
M. Aug. 25 19:10-19:15 UT SS C-8, 32", 28", 20", 15.5"
sun Ig 2s RSN12

M-T. Aug. 25-26 1:45 - 2:30 UT SS C-8, 32" ~~Astroscan~~ and 11x80
Mars, Jupiter, Saturn, M57

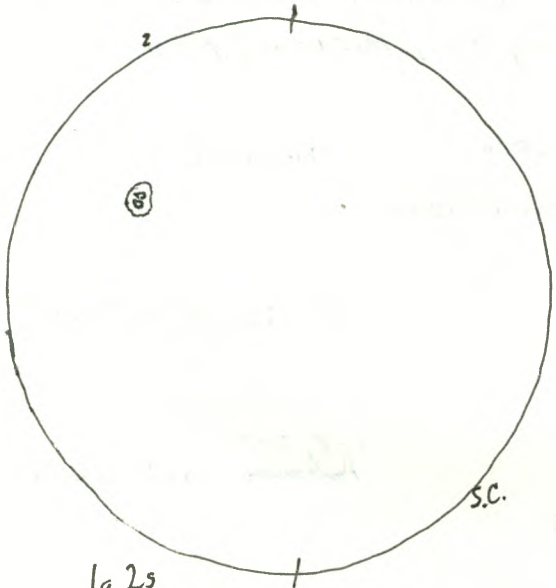
W-T. Aug. 27-28 1:30 - 4:00 UT. OO s8(?) T9 C-14, 32" E+K, 19" (5.4" for M57)
Mars, Saturn, Jupiter, M57, βLyr, ε Lyr, NGC 6802 near Col 399, M71 and H20 nearby, NGC 7009 (Saturn Nebula), M52, M13 and 6207, M92, M22, M31, M32, M110 (Jovian moon Io seen just after occultation reappearance which was at 3:36 UT.)



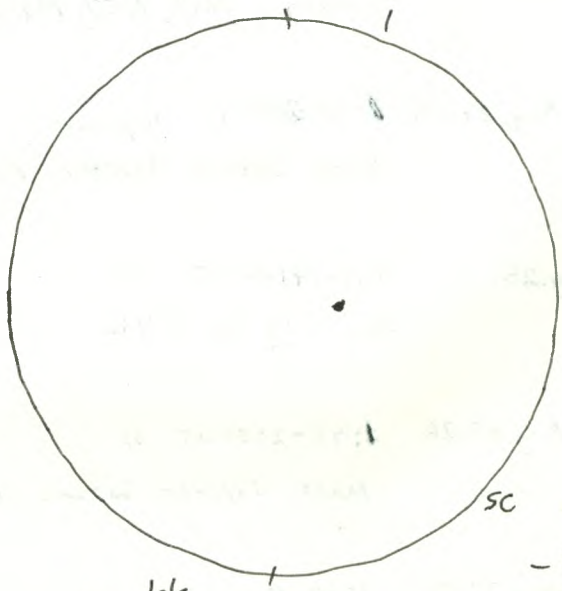
lg 4s
RSN14.
Aug 30



lg 2s
RSN12
Aug 31



lg 2s
RSN12
Sept. 1



lg 1s
RSN11
Sept. 8.

- Venus seen from Syracuse about 23:30 UT Sept. 6-7
- Venus seen a few minutes before sunset (about 23:28 UT both Sept. 7-8 and 8-9.
- FROST in the area S-M Sept 7-8

1986 T.F. Aug. 28-29 2:00-4:15 UT OO S 8 T 9.5 (int. cloud) C-14, 32", 19"
M57, M27, Jupiter, Mars, M22, M13 and NGC 6207,
NGC 7009 (Saturn Nebula), M8, M20, NGC 404 near β And, M33.
- tested new Oxygen III filter on emission nebula
which seemed considerably brighter but somewhat less
well defined.
- several bright meteors, including 2 or 3 Perseids.

F.-S. Aug 29.-30 4:40-5:40 UT SS S 8 T 8.5 Astroscan, 15.5", 8"
Jupiter including Occultation reappearance of Io at 5:26 UT, M27, M57,
M13, M92, M31, M32, M110, M33, M45

Sa Aug 30 17:15-17:18 UT SS C-8, 32", 28", 20", 15.5"
sun 1g 4s RSN14 granulation seen

Sa Su. - Aug 30-31 2:00-4:15 UT OO S9 T8.5 C-14 32", also 19"
M27, M57, M13, M92, NGC 404, M71, M52, M8, M20, M33
M31, M32, M110, M11, M22, M12, M10, NGC 6802, Jupiter
Faint spiked Aurora seen during most of observing session.

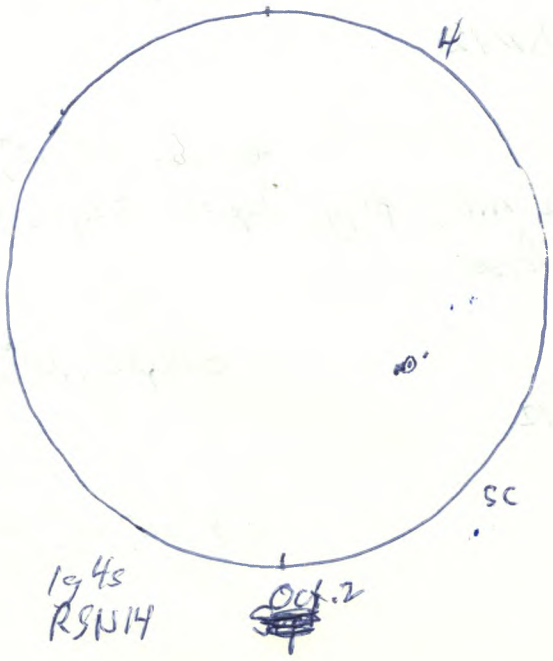
Su Aug 31. 14:50-14:55 UT SS C-8, 32" 28", 20" 15.5
sun 1g 2s RSN12

S-M Aug. 31-Sept. 1 3:00-5:40 UT Table Astroscan, 32", 15", 8"
M16, M27, M33, M32, M110, β Cyg, Jupiter, ε Lyr, γ Del,
Alcor and Mizar, h + χ Persei

M. Sept. 1 16:20-16:40 UT SS C-8, 32", 28", 20", 15.5"
sun 1g 2s RSN12

F. Sept. 5 22:00-22:04 UT SS C-8, 32", 28", 20", 15.5"
sun 0g 0s RSN0

M Sept. 8 21:54-21:58 UT SS C-8, 32", 28", 20", 15.5"
6681 sun 1g 1s RSN11



lg 4s
RSN14

1986 M-T. Sept. 8-9 4:50-5:00 UT y 11x80b

M34, M31, M33, M57 area

F-S. Sept. 12-13 5:40 UT-7:00 ss S7 T9 (dew) C-8-32m, 19m

M36, M37, M38, M1, M76, M103, NGC 404, M34, M33, M31, M32, M110 - Aurora in North

Sa Sept. 13 15:00-15:05 UT ss C-8, 32m, 28m, 20m,

Sun Og Os RSNO

S-S. Sept. 13-14 7:45 - 9:15 UT ss C-8, 32m, 19m

M74, M77, M36, M37, M38, M31, M32, M33, M41, M35, NGC2244

Aurora in patches and in streaks in South and West sometimes being linked into a long band.

Su. Sept. 14 19:10-19:15 UT ss C-8-32m E2", 32m, 28m, 20m, 15.5m

Sun Og Os RSNO

W. Sept 17 19:30-19:35 UT ss C-8, 32m 28m, 20m, 15.5m

Sun Og Os RSNO granulation seen

Su. Sept. 21 17:20-17:25 UT ss C-8, 32m, 28m, 20m, 15.5m

Sun Og Os RSNO granulation seen.

W Sept. 24 20:25-20:30 UT ss C-8, 32m 28m 20m, 15.5m

sun Og Os RSNO granulation seen

W-T. Sept. 24-25 1:35-2:25 UT y and ss S9 T7.5 11x80b and Astroscan 17m

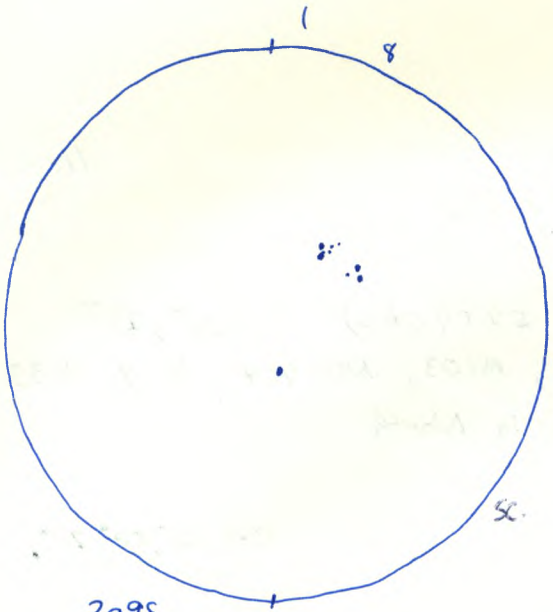
M31, M33, M57, M13, M92, Mars, Jupiter, Alcor, Mizar, Col 399

Th. Oct 2, 20:25-20:40 UT ss C-8, 32m, 28m 20m, 15.5m

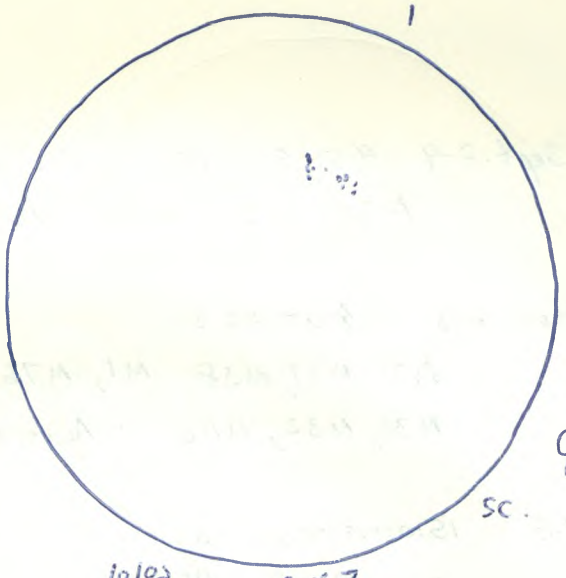
Sun Ig 4s RSN14

Th-F Oct. 2-3 2:05-2:45 UT y Astroscan, 21m, 15m

M92, M13, M31, M33, Alcor-Mizar, M57, Mars, Jupiter

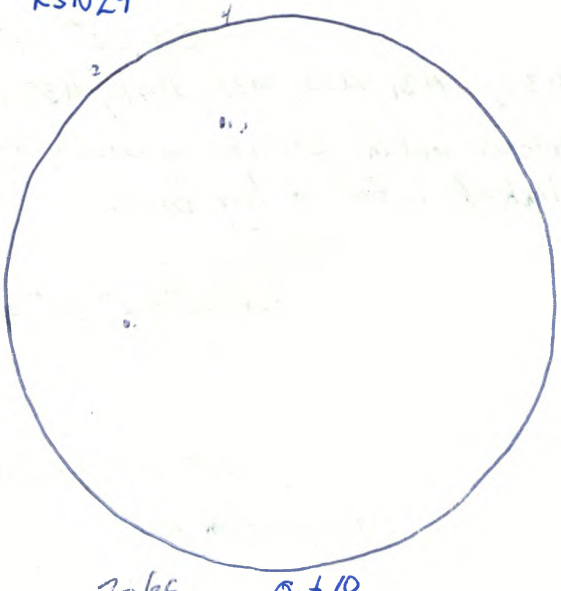


2g9S
RSN29 Oct.6

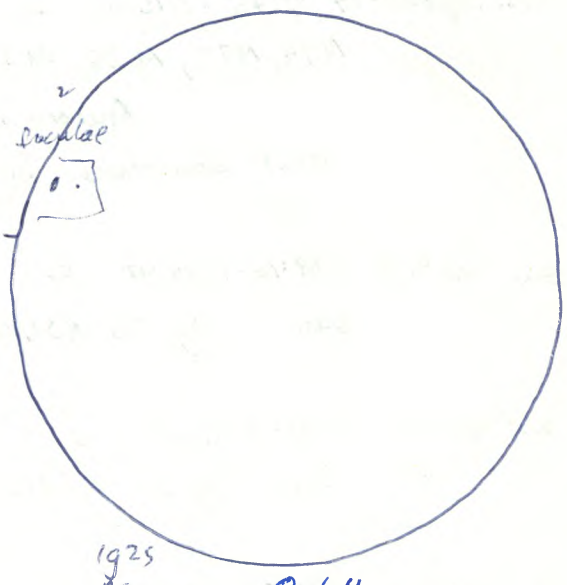


1g10S
RSN20 Oct.7

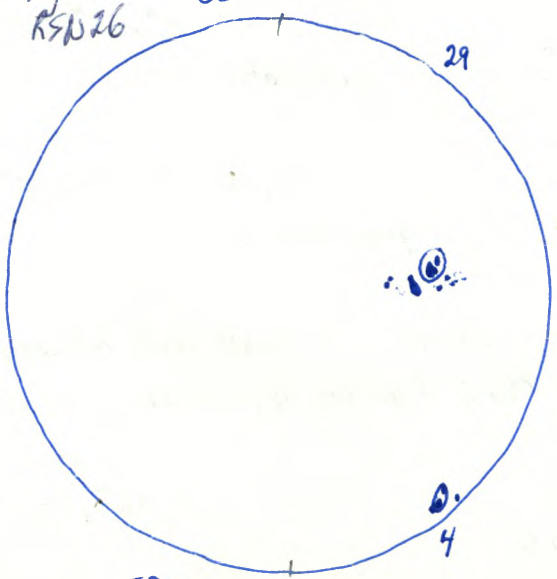
Oct.6-7.
4.25UT Shadow Transit of Ganymede



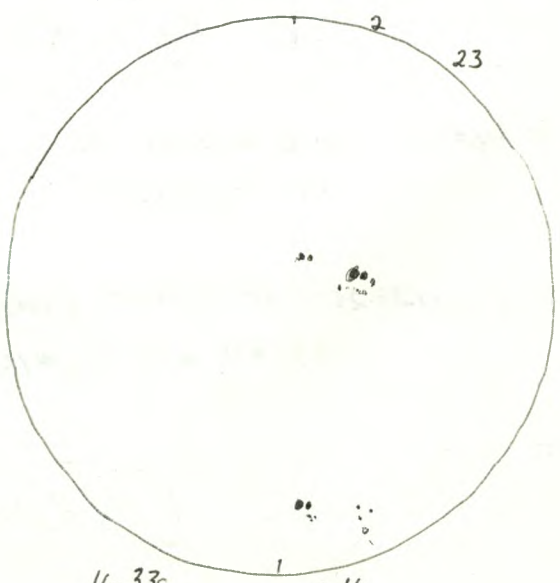
2g6S
RSN26 Oct.10



1g2S
RSN12 Oct.11



2g33S
RSN53. Oct.20.



4g33S
RSN73 4 4
Oct.22.

2403.

1986 M. Oct 6. 21:10-21-15 UT SS C-8, 32mm, 28mm, 20mm, 15.5mm
sun 2g 9s RSN29 sun low in west - up about 5°.

M-T. Oct 6-7 4:15 - 4:45 UT SS C-8, 8mm, 12mm, 32mm
Jupiter with Ganymede in transit and shadow transit with the latter clearly seen, M33, M32, M31, M110, M45, M27, & Lyr

T. Oct 7 20:30 - 20:40 UT SS C-8, 32mm, 28mm, 20mm, 15.5mm
sun 1g 10s RSN20 granulation evident

F. Oct. 10 19:50-19:55 UT SS C-8 32mm 28mm, 20mm 15.5mm
sun 2g 6s RSN26

Sa Oct. 11 21:20-21:22 UT SS C-8 32mm, 28mm, 20mm 15.5mm
Sun 1g 2s RSN12.

M. Oct. 20 19:47-19:53 UT SS C-8, 32mm, 28mm, 20mm, 15.5mm
sun 2g 33s RSN53

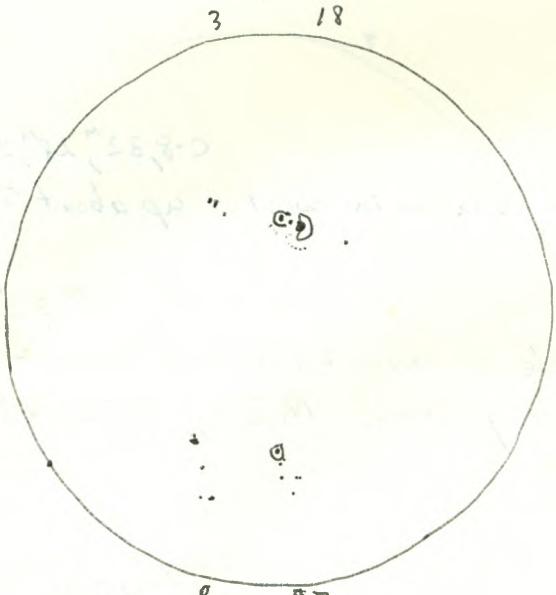
M-T Oct. 20-21 23:36. 23:59 UT y Astroscan, 28mm, 8mm
Jupiter, Mars, M31, M15. No Orionid Meteors seen

W. Oct. 22 20:10 - 20:12 UT SS C-8, 32mm, 28mm, 20mm, 15.5mm
sun 4g 33s RSN73

F. Oct. 24 21:32 - 21:46 UT SS C-8 32mm 28mm 20mm 15.5mm
sun 4g 36s RSN76 granulation seen.

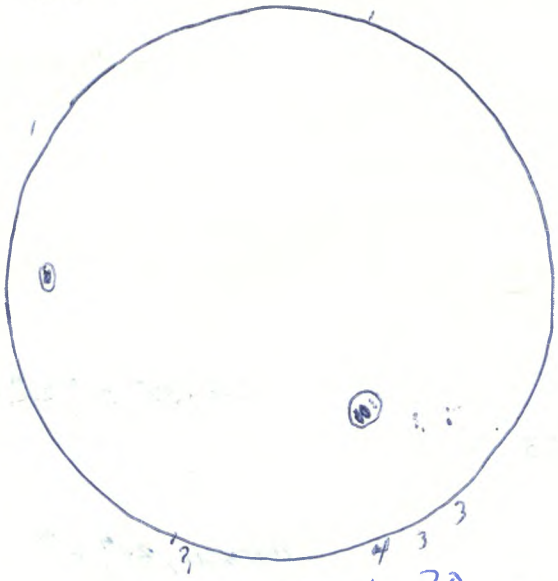
F-S. Oct. 24-25 - 4:40 UT SS C-8, 32mm, 9mm (both 2")
Jupiter, M15, M1, M42, M43, M33, M31, M32, M110
observed with - Denise Sabat

Tu. Oct. 28 21:14-21:18 UT Table at SS C-8, 32mm 28mm 20mm, 15.5mm
sun 4g 9s RSN49 faculae evident in 2 areas
Sun very low in west.



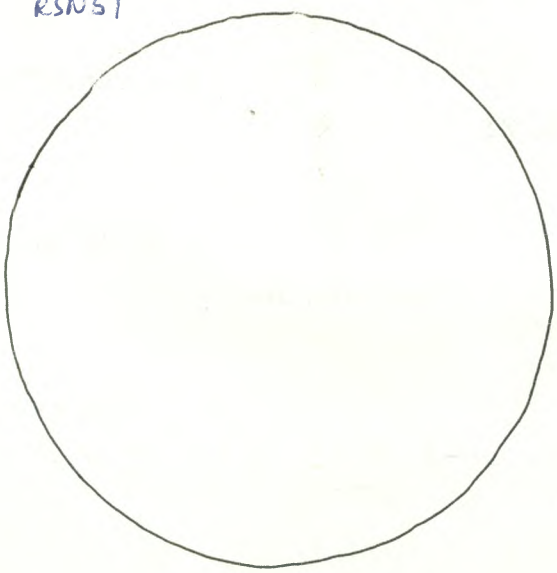
48 36s
RSN 76
Oct. 24

Oct. 28?
49 9s
RSN 49



fg 11s
RSN 51
Oct, 30.

45 12s
RSN 52
Oct 31.



Nov. 30

Position 0^h UT Nov. 26
Comet Encke $3^h\ 20^m\ 28.4^\circ$ N
mag. 10–11
7.4 d cycle for
Haller

1986 T-W Oct. 28-29 1:45-2:00 UT y S(2) T7.5 11x80b
M31, M33, M36, M37, M38, Pleiades

Th. Oct. 30 20:40-20:50 UT C-8, 32m, 28m, 20m, 15.5m
Sun 4g 11s RSN51

F. Oct. 31 20:45-20:50 UT ss C-8, 32m 28m, 20m, 15.5m
Sun 4g 12s RSN52

Tu. Nov. 4 21:20-21:25 UT ss table C-8, 32m
Sun low and partly hidden - possibly 3g 11s RSN41

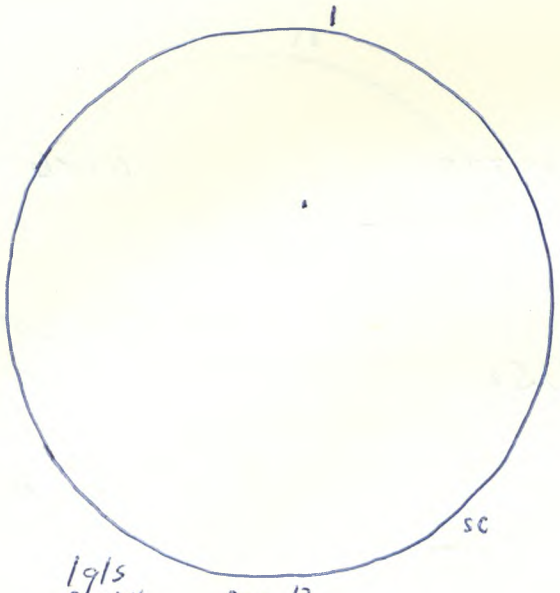
T-W Nov 4-5 1:10-4:20 UT oo C-14, 32m
Jupiter with III in occultation, Mars, M31, M32, M110, M45, Veil Nebula, NGC 777 in Triangulum, M15, M2, M74, M77.

TW Nov 25-26 2:30-3:15 UT y 11x80b and Astroscan, 28m, 8m
Jupiter, Mars, M42, M78

T-F Nov. 27-28 22:50-23:30 UT ss C-8, 32m
Jupiter, search for Comet Wilson (1986 l) in Aquila at about R.A.: 19h 52.8m Dec.: -6° 14' (2000) (coordinates for 0h Nov. 26) (south of η Aqu) but it was not definitely seen. Clouds hindered a lengthy search!

S.S. Nov. 29-30 23:44-3:30 UT oo S 4.5 T 4.5 C-14, 32m (also 9m and 40m)
Comet Wilson in Aquila at about 10th magnitude south of η Aquilae, Jupiter and II Tr. I and III Tr. I., M15, M2, M74 M77, M78, M35, M97, M79, M41, M33, M42, M43, M1, NGC 1055. Guest: Denise Saturn

Su. Nov. 30 16:35-16:40 UT ss C-8, 32m, 28m, 20m 15.5m
Sun 0g 0s RSN0



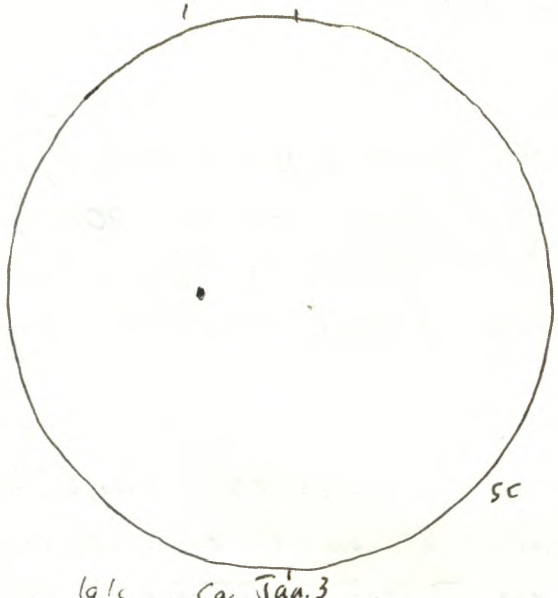
lg/s
RSNH Dec. 13

Venus and Mercury
in morning sky
Sun — Mon. Nov. 30 - Dec. 1.

NGC 147
NGC 185

2 galaxies
near M31, M32

NGC 925



lg/s
RSNH ca Jan. 3

1986 S-M Nov.30-Dec.1. 2:05-2:25 y Astrocan, 21.5^m

Jupiter, Mars, M45, M35, M42, M43, M1.

F Dec.5 20:40-20:45 y. (N. deck) C-8, 32^m, 28^m, 20^m, 15.5^m

sun Og Os RSNO sun quite low

Sa Dec.13 16:15-16:20 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m

sun 1g 1s RSN 11 - possibly a very tiny additional spot on each side of the small spot seen in the northern hemisphere

16:30-16:40 y (7x35b) 11x80b.

Venus seen in ~~the~~ 11x80 binoculars, but was not seen "naked-eye" with certainty.

(?)

S-S Dec.13-14 1:30-1:40 UT y ne

- looked for Geminid meteors and saw two in northern sky. A very bright "near full" moon probably hindered viewing more of them.

W, Dec.24 16:45-16:50 UT ss C-8, 32^m, 28^m, 20^m, 15.5^m

sun OgOsRSNO (haze)

1987 Sa. Jan.3 21:00-21:05 UT y (N. Deck) C-8, 32^m, 28^m, 20^m

sun 1g 1s RSN 11 sun very low

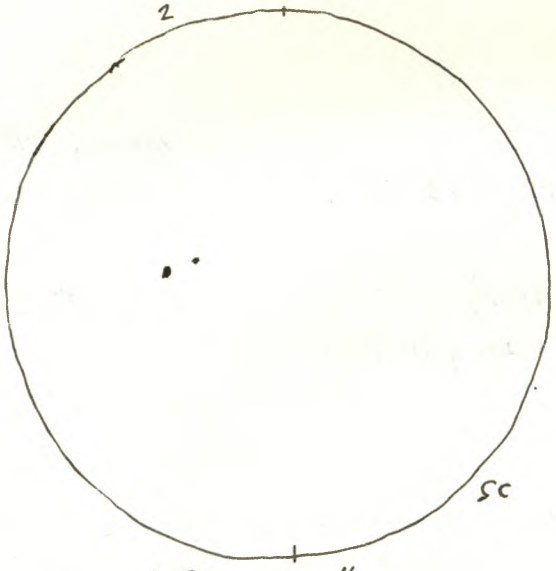
S.-S. Jan 3-4 23:45-2:45 UT y ne and 11x80b

Quadrantid Meteor Shower - about 12 meteors seen radiant in NNW to N. to NNE and below or close to the horizon. Most meteors not extremely bright. not as numerous as expected though radiant was very low.

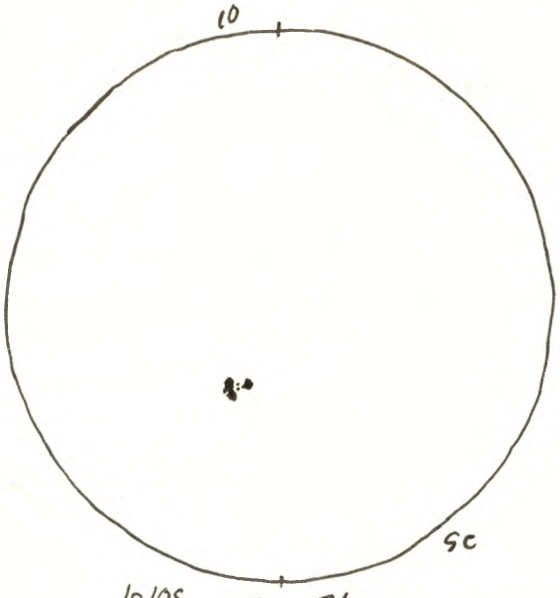
- with binoculars - M50, M44, M67, M42.

6:30-8:30 UT y and indoors through south window ne

Quadrantid Meteors - about 15 to 20 including one very bright fireball magnitude -8 to -10 at 7:19 UT.



lg 2S Jan. 4
RSN12



lg 10S Jan. 21
RSN20

Jan. 7-8
11:00 p.m.
phone call from Peter Jedicke
about discovery of
Comet 1987a by
David Levy
position on morning of
Jan. 5. $17^h 20^m$ $+11° 30'$
Jan. 7. $17^h 13^m$ $+9° 30'$

Jan. 15-16 — morning ne sighting of Venus before sunrise within day of time of its Greatest W. Elongation

1987 Su. Jan. 4 16:30 - 16:40 UT ss C-8, 32", 28" 20" 15.5"
sun lg 2s RSN 12 possibly other faint spots near right one

M Jan 5 22:20 - 22:50 UT oo C-14, 32"K.
Lunar Craters on crescent moon, Jupiter, Mars
Clouds forced end of session before photographs could be taken

T. Jan. 13 20:35 - 20:40 UT ss C-8, 32", 28", 20", 15.5"
sun Og Os RSNO

F. Jan. 16 20:30 - 20:35 UT ss C-8, 32", 28", 20", 15.5"
sun Og Os RSNO

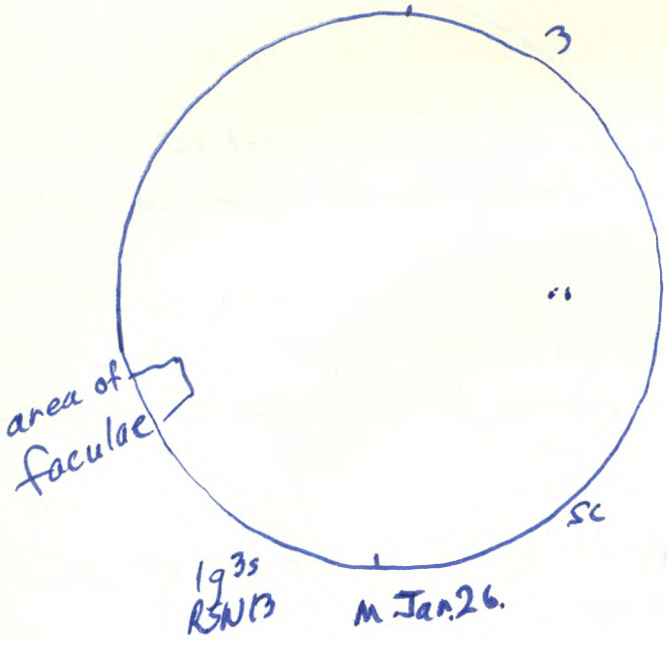
Sa Jan. 17 15:30 - 15:35 UT ss C-8, 32", 28", 20", 15.5"
sun Og Os RSNO

T. Jan. 20 20:35 - 20:40 UT ss C-8, 32", 28", 20", 15.5"
sun Og Os RSNO

T-W. Jan 20-21 00:10 - 00:30 UT y 11 x 80.
M42, M43, M45, Jupiter

W. Jan. 21 20:35 - 20:40 UT ss. C-8, 32", 28", 20", 15.5"
sun lg 10s RSN 20

W-Th. Jan. 21-22 00:30 - 04:20 UT y. + ss. SB-9(?) T9 11x80 and C-8, 32" 2" Ref.
Zodiacal Light - very distinct and extending into Light Bridge well past the Pleiades.
Mira very prominent naked eye at mag. 3.5 to 3.0
R Lep., Jupiter, M108, M97, M81, M82, NGC 2976 and NGC 3077 (both near M81 and M82), M109, NGC 3877 (*), M46, M47, M48, M93, M65, M66, NGC 3628 and NGC 3593 (both near M65 and M66)
(* near χ UMa)



28 Messier Objects

1987 S-M Jan 25-26 00:00-1:00 in car n.e.

Zodiacal Light observed while driving from Syracuse to Sharbot Lake

00:55 Mira seen naked-eye

5:15-5:45 UT s 7.8 T 7.5 11×80b

M45, M44, M67, M51, M66, NGC663 in Cas, RLep

M Jan. 26 20:45-20:55 UT ss C 8, 32m, 28m, 20m, 15.5m

sun 1g 3s RSNB possibly other faint spots

M-T Jan. 26-27 00:45-4:10 UT y + table 11×80b and Astroscan + 21.5m

with 11×80 binoculars:

Jupiter, Mars, O Cet (also n.e. - at mag 3.4(?)), RLep, ER Ori (threshold) RX Lep (about mag 7.) RR Lep (threshold), RX Eri (too faint), M45, M35, M41, M42, M43, M46, M47, (NGC 2423 near M47), M93, M44, M67, M50, M79, M33, M31, M78, M103, NGC663 Cas, M51, M36, M37, M38

With Astroscan + 21.5m ocular:

M1, M48, M81, M82, M79, M65, M66, M97

Zodiacal Light was prominent esp. from 00:45 to 1:45 U.T.

Tu Jan. 27 20:50-21:05 UT s.s. C 8, 32m, 28m, 20m

Sun Og Os RSNO very hazy, somewhat cloudy; possibly sunspots were undetected.

S.S Jan 31-Feb. 1 5:00-6:00 UT y S 8(?) T 8.5. 11×80.

RLep, RX Lep, NGC 2244, M93, M41 M42, M43, M46, M47 NGC 2423, M48, M65, M66, M51, M3.

M Feb. 9 21:23-21:28 UT ss C 8, 32m, 28m, 20m

Sun Og Os RSNO

Azimuth of moon when crossing meridian Monday evening
45 + 28.27 = 73°.27
Azimuth of moon at rising on Tuesday afternoon approximately: 48°

moon in N.N.W at about 6:00 a.m. Feb. 12.

Venus in morning Feb. 15 and 16

1987 M-T. Feb. 9-10 00:30-00:38 n. deck ne and 7x35b.

- Mira - bright enough to be seen easily naked eye in spite of a very bright moon - Mira probably brighter than 3rd mag.
- Moon: very far north - 28.°27 N. Dec at 0^h UT
- Mars and Jupiter in western sky.

T. Feb. 10 21:18-21:24 UT SS C-8, 32m, 28m, 20m, 15.5m

Sun Og Os RSNO

T.-W. Feb. 10-11 1:30-1:40 n. deck ne and 11x80b

- Mira (o Ceti) easily seen naked-eye, very bright - perhaps about mag. 2.5 appearing about as bright as δ Orionis.
- Mars in western sky.

W. Feb. 11 21:20-21:25 UT SS C-8, 32m, 28m, 20m, 15.5m

Sun Og Os RSNO

T. Feb. 12 20:50-20:55 UT SS C-8, 32m, 28m, 20m, 15.5m

Sun Og Os RSNO granulation evident.

F. Feb. 13 20:55-21:02 UT SS C-8, 32m, 28m, 20m, 15.5m

Sun Og Os RSNO sun "boiling" - seeing probably poor.

Sa Feb. 15 19:15-19:20 UT SS C-8, 32m 28m 20m, 15.5m

Sun Og Os RSNO

M. Feb. 16 20:45-20:50 UT SS C-8, 32m, 28m, 20m, 15.5m

Sun Og Os RSNO

M-T Feb. 16-17 1:06-1:45 UT n deck and yard S8(?) T9.5 ne and 11x80b

Mars, M35, M42, M43, RLep, Mira which was very bright - probably brighter than mag 3.0, M41, M44 Zodiacal Light was very bright and extending up to the Pleiades.

Comet Terasako (1987d)

Venus in morning sky
on Feb. 18 and Feb. 19.
and Feb. 20.

1987 Tu. Feb. 17 20:50-20:55 UT ss C-8, 32", 28", 20", 15.5"
sun Og Os RSNO

W. Feb. 18 21:35-21:40 UT table at ss C-8, 32", 28", 20", 15.5"
sun Og Os RSNO

W.-Th. Feb-18-19 00:00-01:00 UT y, SS, table at ss S9(?) T 10(!) 11x80b, Astroscan, C-8, 32"
- Comet Terasako - not seen with certainty in the binoculars or the Astroscan with 28" ocular but confirmed with C-8 and 32" K ocular; also observed in C8 with 19", 32" Erfle 2" ocular, and 55" ocular
- no tail seen on the comet, probably about 10" magnitude - quite diffuse - seen about at R.A. 1h 32", Dec: -15° - in constellation Cetus, NW of star Tau Ceti.
- also observed with C-8: Mars, Mira (very bright - perhaps mag.: 2.9), RLep, RX Eri, M42, M43, M41
- Zodiacal Light - very bright, brighter than winter Milky Way.

Tha Feb. 19: 20:48-20:54 UT SS C-8, 32", 28", 20", 15.5"
sun Og Os RSNO - some faculae near equator at approaching limb

Tu-F. Feb. 19-20 00:00-03:00 UT SS and y S8.5 T 10(!) C-8, 32" and 7X35b.
- Zodiacal Light very prominent, brighter than Milky Way (photographed it)
- with C-8: Mira (about mag. 3 or brighter), area near Comet Terasako but it was too low, the search having been delayed too long, M42, M43, Cor Caroli, M51, M65, M66.
- with 7x35b: stars in area of T Pyx and some stars in Puppis and even a few in Vela.

F.-Sa - Feb. 20-21 00:20-03:00 UT y S8(?) T 8.5 11x80b
- photographed Zodiacal Light which was very bright
- with 11x80b: - M51, M81, M82, M3, M45, M41, M42, M43, RLep
Mira - very bright - probably brighter than 3rd magnitude.

Relative Sunspot Numbers

U.T. 1986	Recorded	AAVSO.	Brussels
Jan. 4.74	0	0	0
5.875	0	0	0
13.86	14	15	13
14.88	15	16	14
21.87	0	0	0
23.74	0	0	0
30.87	13	10	8
31.87	16	12	8
Feb. 2.89	20	33	31
6.89	44	48	47
11.89	34	36	37
12.89	34	26	25
25.89	0	10	11
26.89	16	12	11
27.9	0	15	15
Mar. 1.79	20	14	16
8.73	15	24	32
11.79	16	11	18
12.68	0	11	13
17.89	11	0	0
20.89	0	9	12
22.625	0	9	10
23.89	11	19	19
24.9	11	17	18
27.92	0	8	11
31.81	0	0	0
Apr. 1.92	0	0	9
2.89	0	0	10
4.89	0	0	0
13.81	16	10	14
14.88	24	19	26
17.89	14	10	14
18.89	17	11	15
19.83	12 (3" telescope)	10	13
Apr. 22.89	30	21	20
Apr. 23.90	72	41	54
Apr. 26.81	47	40	43
27.79	44	32	33
28.9	56	23	23
30.88	16	14	33
May 2.86	38	23	23
4.6	0	8	9
7.89	0	0	0
9.83	0	0	0
10.78	0	0	0
11.64	0	0	0
12.82	0	0	0
13.86	0	0	0
17.74	16	14	13
28.83	22	18	18
29.9	12	15	17
30.86	13	9	13
Jun. 2.916	0	0	0
4.92	0	0	0
6.83	0	0	0
8.81	0	8	0
9.88	0	0	0
14.76	0	0	0
15	0	0	0
17	0	0	0
18	0	0	0
20	0	8	8
21	0	0	0
23.68	0	0	0
Jul 3	0	10	10
7	34	30	29
8	20	28	29
9	38	18	17
July 10	45	30	33
14	14	19	16
21	12	21	21
23	0	12	14
Aug. 4	19	12	11
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
17	0	0	7
18	0	0	0
19	0	0	0
25	12	10	9
30	14	10	9
31	12	10	9
Sept. 1	12	9	8
8	11	11	11
13	0	0	0
14	0	0	0
17	0	0	0
21	0	0	0
24	0	0	0
Oct. 2	14	12	14
6	29	14	25
7	20	14	27
10	26	11	31
11	12	11	23
20	53	21	39
22	73	32	54
24	76	42	76
28	49	49	61
30	51	34	62
31	52	28	53

Relative Sunspot Numbers

		Recorded.	A.A.U.S.O.	Brussels
1986	Nov. 4	41(?)	35	37
	30	0	0	0
	Dec. 5	0		
	24	0		
1987	Jan 3	11	12	12
	4	12	13	11
	13	0	0	0
	16	0	0	0
	17	0	0	13
	20	0	9	9
	21	20	13	14
	26	13	18	14
	27	0(?)	11	12
	Feb. 9	0		
	10	0		
	11	0		
	12	0		
	13	0		
	15	0		
	16	0		
	17	0		
	18	0		
	19	0		

Magnification

Ocular	in C-14 (3910mm F.L.)	C-8 (2000mm F.L.)	Astroscan (445mm F.L.)
55m	71 x	36.4 x	
40	97.8	50	11.1 x
36	108.6	55.6	12.4
32	122.2	62.5	13.9
28	139.6	71.4	15.9
26	150.4	76.9	17.1
25	156.4	80	17.8
21.5	181.9	93	20.7
20	195.5	100	22.3
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

19 – 205.8 105.3 23.4