

Volume

13

February 23, 1997
to
January 1, 1998

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13.

Fanco



cahier **SCIENCE** book

PAPIER ÉPAIS — HEAVYWEIGHT PAPER — 100 PAGES

name • nom Lea Enright Observing

subject • sujet: Feb. 23, 1997 - Jan. 1, 1998

Fanco
606 DE COURCELLE
MONTREAL H4C 3L5

49-1092

WHERE FACILITIES EXIST



LA OÙ LES INSTALLATIONS
NECESSAIRES EXISTENT



11" x 8 3/8" • 279 mm x 212 mm

1997

JANUARY							FEBRUARY							MARCH							APRIL							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
			1	2	3	4					1																	
5	6	7	8	9	10	11	2	3	4	5	6	7	8	2	3	4	5	6	7	8	6	7	8	9	10	11	12	
12	13	14	15	16	17	18	9	10	11	12	13	14	15	9	10	11	12	13	14	15	13	14	15	16	17	18	19	
19	20	21	22	23	24	25	16	17	18	19	20	21	22	16	17	18	19	20	21	22	20	21	22	23	24	25	26	
26	27	28	29	30	31		23	24	25	26	27	28		23	24	25	26	27	28	29	27	28	29	30				
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MAY							JUNE							JULY							AUGUST							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
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4	5	6	7	8	9	10	8	9	10	11	12	13	14	6	7	8	9	10	11	12	3	4	5	6	7	8	9	
11	12	13	14	15	16	17	15	16	17	18	19	20	21	13	14	15	16	17	18	19	10	11	12	13	14	15	16	
18	19	20	21	22	23	24	22	23	24	25	26	27	28	20	21	22	23	24	25	26	17	18	19	20	21	22	23	
25	26	27	28	29	30	31	29	30						27	28	29	30	31			24	25	26	27	28	29	30	
																					31							
SEPTEMBER							OCTOBER							NOVEMBER							DECEMBER							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
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7	8	9	10	11	12	13	5	6	7	8	9	10	11	2	3	4	5	6	7	8	7	8	9	10	11	12	13	
14	15	16	17	18	19	20	12	13	14	15	16	17	18	9	10	11	12	13	14	15	14	15	16	17	18	19	20	
21	22	23	24	25	26	27	19	20	21	22	23	24	25	16	17	18	19	20	21	22	21	22	23	24	25	26	27	
28	29	30					26	27	28	29	30	31		23	24	25	26	27	28	29	28	29	30	31				
														30														



Observing Log

Code:
 Year Day Date Time Place Sky Conditions Instruments
 S = Seeing T = Transparency

e.g.:

Time

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

Place

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

Sky Conditions:

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

Instruments:

C-14 = Celestron 14
 C-8 = Celestron 8
 Ast = Astroscan

20x100b = 20x100 binoculars

11x80b = 11x80 binoculars

9x63b = 9x63 binoculars

7x35b = 7x35 binoculars

32 = 32mm ocular

32-2 = 32mm 2" ocular

K = Kellner

O = Orthoscopic

KO = König

WA = Wide Angle

P = Plössl

ph = photography

p/b = piggyback

o/a = off-axis

Ba = Barlow lens

A.P.F = Astro-Physics Solar Filter

T.O.F = Thousand Oaks Solar Filter

EG = Easy Guider.

EG1f = Easy Guider, lens forward.

EG1b = Easy Guider, lens back.

Objects:

PN = planetary nebula

GC = Globular cluster

OC = open cluster

SC = spiral galaxy

EG = elliptical galaxy

D = double star

LPV = long period variable

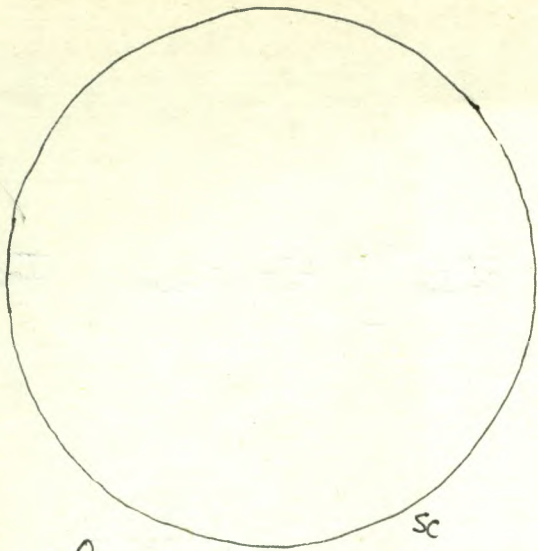
Atlases:

U = Uranometria

U210 = Uranometria Chart 210

AAVSO = AAVSO Variable Star Atlas

Cam. = Cambridge Star Atlas 2000.0



Og
Os
RSNO

Feb. 28
20:20-20:25 UT

sc

Comet Hale-Bopp



Morning Mar. 3 10:35 UT
Comet Hale-Bopp

1997

M.-T. Feb. 24-25 m 09:50-10:15 UT ice gml ne; 9x63b
 C.H.B. summer constellations; Comet Hale-Bopp - below ϵ Cyg in ENE
 at mag. 0.9 and $2\frac{1}{2}^\circ$ tail visible ne and in b.
 my special guests: - *Thomas Bopp*
David H. Levy

F. Feb. 28 20:20-20:25 UT SS C-8, 32, 28, 20, 15.5
 sun Og Os RSNO T.O.F.

F.-S. Feb. 28-Mar. 1 02:00-04:45 UT y, ss 5-8? T9 20x100b; C-8, 32, 15.5
 20x100b: area of NGC 1535 but not sure of seeing it, R Lep -
 very faint - about mag. 9.5-10.0, M42, M45, NGC 1514
 PN in Tau (See Finest NGC #23) (495) With direct
 vision, the small nebulosity seemed to disappear; area
 of T Pyxidis, but star was not seen, RX Eri
 C-8: areas in Taurus, Mars.
 Zodiacal Light was easily seen before and early in the
 observing session. Foggy haze developed near end of
 observing session

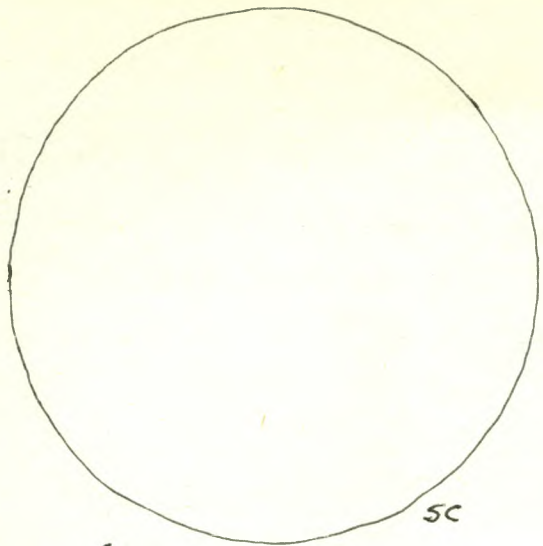
5:35 a.m. E.S.T.

S.-M. Mar. 2-3 m 10:35 UT in gml and twl ne
 C.H.B. - Looking out E. window Comet Hale-Bopp was
 a bright and beautiful sight just above the trees
 in the ENE at about mag 0.3, very obvious
 in spite of the twilight which had begun about
 25 min. earlier and the Last Quarter Moonlight.

Th.-F. Mar. 6-7 m 10:15 in twl ne
 C.H.B. Comet Hale-Bopp seen in ENE just above the trees,
 very bright at mag. 0.0 with short tail seen, even
 though it was about 20 min. after the beginning of twl.

F.-S. Mar. 7-8 00:10-00:20 UT y twl ne; 9x63b
 C.H.B. Comet Hale-Bopp - easily seen about 30 min before end
 of astronomical twilight, in NW about 10° above horizon,
 at mag. 0.0 with tail pointing to the right. I also went

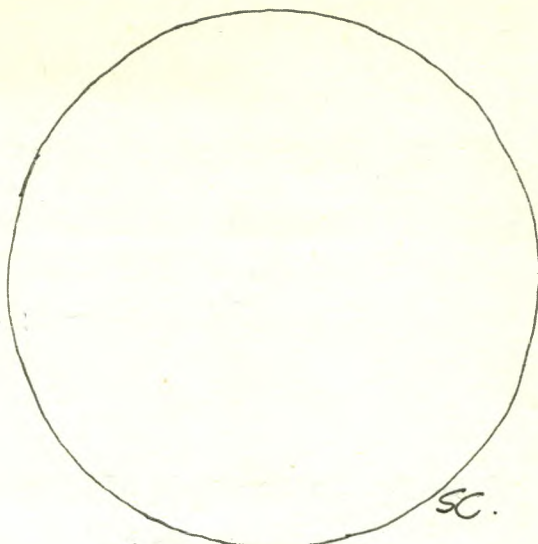
Finest
NGC #23



SC

Og
05
RSNO

Mar. 9
19:25-19:30UT



SC.

Og
05
RSNO

Mar. 11
21:05-21:10UT

1997

to the neighbour's place to show the comet to Wayne Cronk and his two children. Denise also saw it. It was the first time I had seen this comet "twice in the same day, local time", having seen it in the morning about 14 hours previously.

Mar. 8-9 04:20-05:20 UT y S-8, T9 20x100b.
 area of R Leonis, area of T Pyxidis, M104, NGC 3521-
 G-5b in Leo (U236) - on the Celestial equator
 at R.A.: 11:05:8, Dec -00 02 - bright at mag. 8.7
 (Finest N.G.C. Object 56); NGC 2903 - G-5b in
 Leo (U143), star-hopping from E Leonis and γ Leonis,
 at mag. 8.9, at R.A.: 9 32.2 Dec.: +22, very bright and
 easily seen (Finest N.G.C. Object 54)

3521
(Finest
NGC #56)

2903
(Finest
NGC #54)

Mar. 8-9 m 10:10-10:30 UT y mtwl 9x63b
 Comet Hale-Bopp at mag -0.5 - very bright with
 very distinct division between dust tail and gas tail
 in b.
 -photographed the comet also.

Su. Mar. 09 19:25-19:30 UT t C-8,32,28,20,15.5
 Sun Og Os RSNO

M.-T. Mar. 10-11 00:00 - 00:20 UT y twl. 9x63b
 Comet Hale-Bopp, up about 10° - 15° in NNW and
 very bright in the twl. with 10-20 tail, at
 about mag. -0.5, in spite of some haze; also
 visible ne.

Tu. Mar. 11 21:05-21:10 UT ss C-8,32,28
 Sun Og Os RSNO T.O.F.

T.-W. Mar. 11-12 00:30 - 01:30 UT at ^{Wayne}Cronk's place twl; later ^{cm1} 9x63b
 observed and photographed Comet Hale-Bopp in NW

CHB

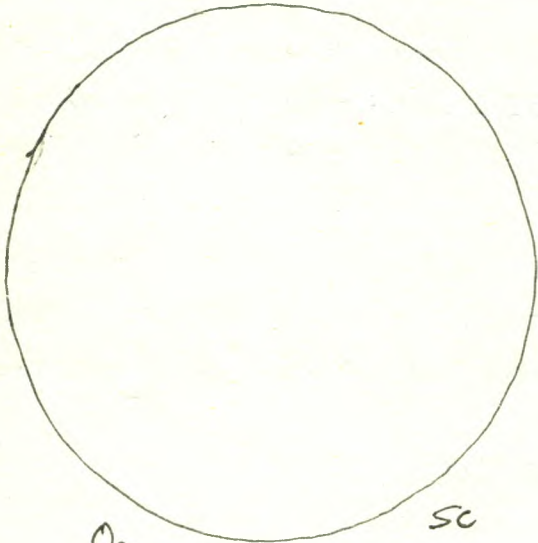


Comet Hale-Bopp in 9x63b
Mar. 11-12 00:30 UT



122X

Comet Hale-Bopp in C-14
Mar. 12-13 00:30 UT



Og
Os
RSNO
Mar. 12
19:30-19:35 UT

SC

1997

up about 12° , later up only about 3° - at about mag-0.4, among the brightest things in the sky except for the 3-day old crescent moon and the very brightest stars. The gas tail above and the dust tail below were clearly separated in the binoculars - the later about 6° - 7° long, the latter only 2° - 3° long but much wider. The coma was quite diffuse. Denise and the Croak children also observed.

02:30-06:00 UT 00 59T9.5! 20x100b.
C-14, 32, 40;
20x100b: M42, area of Keable's Cascade and other areas in Cam.; later M92; also (early in session) - area of R Lep which was very faint.

4244
(Finest NGC 61)
4214 (60)

c-14: NGC 4244 (Finest NGC #61) west from α CnV - very thin and elongated; NGC 4214 (Finest NGC #60) - south from NGC 4244 (See U108); NGC 4190, nearby ^{far out} galaxy NW from NGC 4214; NGC 3941, W. from NGC ~~4214~~ 3941 (NGC 3941 is Finest NGC #44). It is near Grosvenor 1836 (See U107.); NGC 4274 (It is Finest NGC Object #68.) in Coma, W and N from γ Com (See U108); NGC 4414 (Finest NGC 69) which is almost due N. from γ Com (U108); from just north of this object I star-hopped E to NGC 4656/7 in CnV (Finest NGC #65). It is very thin. From there it is a very short distance NW to NGC 4631 (Finest NGC #64) which is thin and bright at mag. 9.3. (For the last 2 objects, see also U108)

3941 (44)

4274 (68)

4414 (69)

4656/7 (65)

4631 (64)

W. Mar. 12 19:30-19:35 UT
Sun 09 05 RSN 0

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

W-Th. Mar. 12-13 00:30-01:30 UT 00, y s-7-8, T9 C-14, 32, 19; 20x100b;

9x63b

c-14: Comet Hale-Bopp - coma seen at 122x and 206x.

c-14B

There seemed to a great deal more material pouring out on one side more than on the other.

There also appeared to be a "circular pattern

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Faint handwritten notes in the bottom-right quadrant of the page.

about the coma.

20x100b and 9x63b: The gas tail - very long and the dust tail - much wider and shorter were very distinct and well separated. The total magnitude of the comet was about -1. It was seen from when it was about 20° up in the NW until it was about 10° up.

also in 20x100b - area of R Lep., M42, M41, area of R Leonis (R Lep. - very faint; probably mag 10; R Leonis - quite faint; probably mag. 8.)

- NGC 5005 (66)

c-14: NGC 5005 (Finest NGC object #66) G-Sb near α CnV (See U109) - bright central area; NGC 5033 (Finest NGC 67) - G-Sb - also near α CnV - bright central area (U109); NGC 4388 (Finest NGC 77) near M84 in Virgo cluster, elongated, star-hopped from β Leonis, also observed nearby M84, M86, NGC 4387, NGC 4413, NGC 4438, NGC 4435, NGC 4402 N of M86; NGC 4216 (W from 4402) (Finest NGC 76) very thin but with a bright central area, and nearby NGC 4206 - extremely thin and faint, nearby, and also NGC 4193, NGC 4168, 4164 and 4165 though 4164 was extremely faint and probably seen only by averted vision; NGC 4026 (Finest NGC 45) S of γ UMa ^{G50} very thin with bright central area, (U47); NGC 4088 (Finest NGC 46) SE from previous galaxy, G-Sc, diffuse with central core not noticeably bright; NGC 4157 (Finest NGC 47) E. from previous galaxy, G-Sb, slender and quite faint; NGC 3607 (Finest NGC 57) (U146) G-E1, S from δ Leonis, also the 3 nearby galaxies NGC 3599 NGC 3605 and NGC 3608 and also NGC 3626, just NE of this group; NGC 4111, SE from χ UMa on U74 - G-S0, a fairly wide and oval galaxy with central

- 5033 (67)
- 4388 (77)
M86, M84,

4387, 4413,
4438, 4435

- 4402.
4216 (76)

4206, 4193
4168, 4164
4165

- 4026 (45)

- 4088 (46)

- 4157 (47)

- 3607 (57)

3599, 3605
3608, 3626

- 4111 (59)

25 galaxies

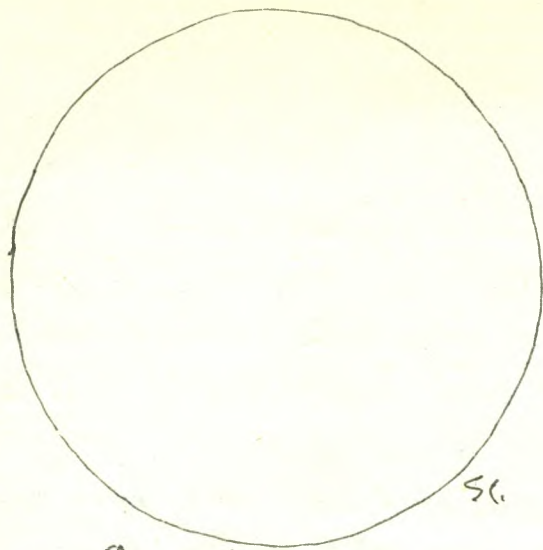
(U: 45 - 5:00 am E.S.T.)
M 09: 45 - 10:00 UT

T9

9x63b

Comet Hale-Bopp with its two very distinct tails in the NE

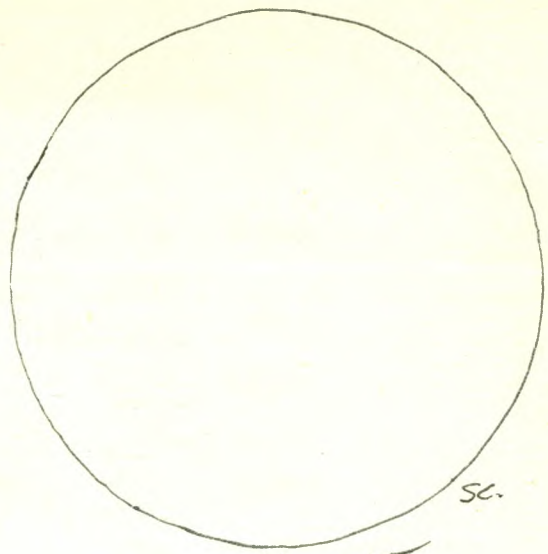
cub



sc.

Og
Os
RSNO

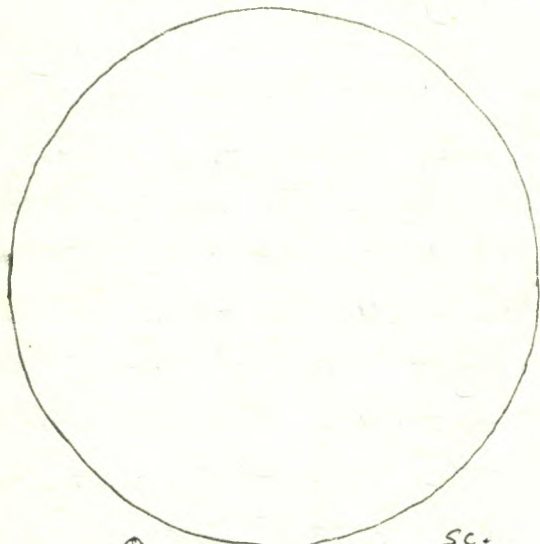
Mar. 13
19:30-19:35 UT



sc.

Og
Os
RSNO

Mar. 15
18:35-18:40 UT



sc.

Og
Os
RSNO

Mar. 16
18:15-18:20 UT

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

1997

at mag. about -1.0 . The ion tail seemed to be much longer than the dust tail
- photographed comet also.

Th. Mar. 13 19:30-19:35 UT t
sun Og Os RSNO

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

Th.-F. Mar. 13-14 00:45-00:50 UT y haze; twl and cm1 9x63b
Comet Hale-Bopp - very bright with 1° - 2° of the tail seen in spite of cloud or haze and twilight, which was just ending, and crescent moonlight.

F.-S. Mar. 14-15m. 09:30-10:00 UT y s8? T8.5-9 ne; 20x100b; 9x63b
-observed and photographed Comet Hale-Bopp at about mag. -1.0 - very bright in ENE. with tail from 5° - 10° long. In binoculars the ion tail was very long and thin and well separated from the shorter, narrower dust tail.

Sa. Mar. 15 18:35-18:40 UT t
sun Og Os RSNO

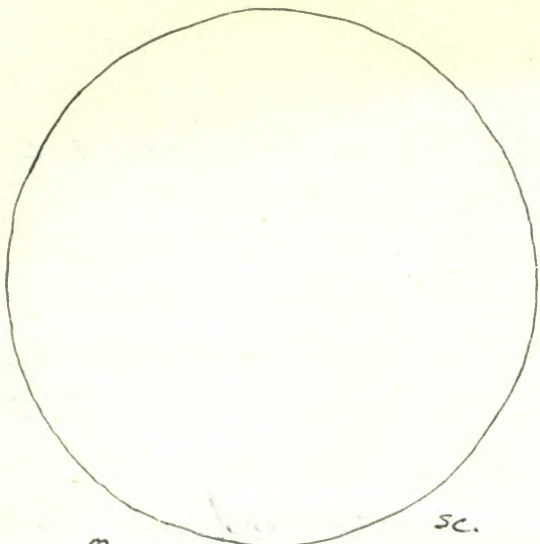
C-8, 32, 28, 20, 15.5

Sa.-Su. Mar. 15-16 00:00-00:45 UT y twl; fgml ne; 10x25b
-periodically observed Comet Hale-Bopp in NW even though it was mid-twilight and there was a bright first quarter moon. The comet was visible, apparently after Sirius and Capella or Aldebaran, as I thought, the third object in brightness after the moon in the sky. Its increased height in the sky is noticeable also.

Su. Mar. 16 18:15-18:20 UT t
Sun Og Os RSNO

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

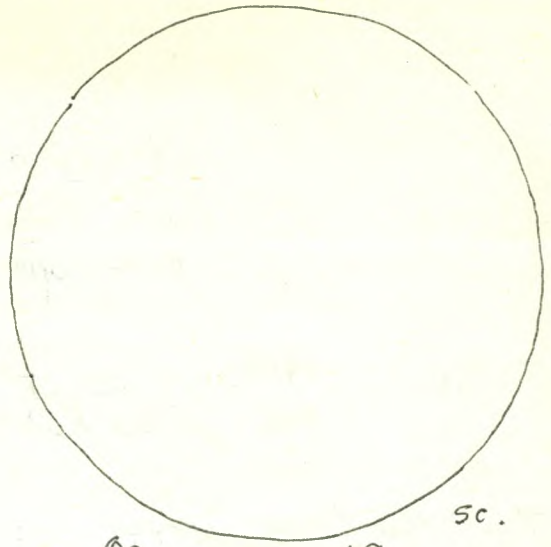
S.-M. Mar. 16-17 00:00-01:00 UT y fgml; twl ne; 20x100b ^{headheld} 1
Comet Hale-Bopp in NW seen by Denise about only $\frac{1}{2}$ hour after sunset; about mag -1.0 ; tail easily seen about



Og
OS
RSNO

Mar. 18
21:50 - 21:55

sc.



Og
OS
RSNO

Mar. 19
20:00 - 20:05 UT

sc.

1997

4° long and extending to right from the bright coma.

- noted the minimum of Algol. (On checking later, I saw that time of mid-eclipse was 01h30m UT, just shortly after I was observing.)

Tu. Mar. 18 21:50-21:55 ±
sun Og Os RSN0

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

T.-W. Mar. 18-19 23:30-01:00 UT periodically nd, y twland gml ne; 9x636
- attempts to see Comet Hale-Bopp soon after sunset and during twilight.

- Deaize saw it 20 min after sunset using 9x636. About 2 days previously she had seen it 30 minutes after sunset, naked-eye.

In spite of bright moonlight, it is easily seen ne with a tail 1° to 2° in length and pointing to the right. It is about at mag. -1.

With 9x636. the tail appeared to have noticeable detail.

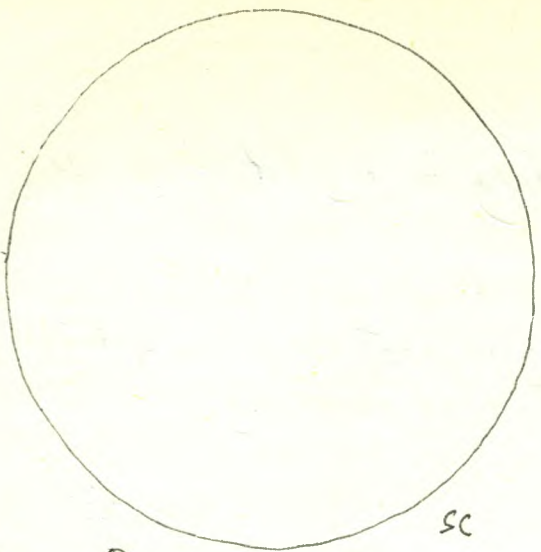
3:45 - 5:00 a.m. E.S.T. some cirrus
08:45-10:00 UT ice and y s? T8-8.5 ne; 9x636

- On lake, observed and photographed Comet Hale-Bopp in NE with tail 10°-15° when transparency was good but there were moments when cirrus cloud was a problem. Several meteors were also seen. The comet still appears much better in the morning; it is unhindered still by interference by moonlight and the two very distinct tails point upward - the bluish ion tail

W. Mar. 19 20:00-20:05 UT ±
sun Og Os RSN0

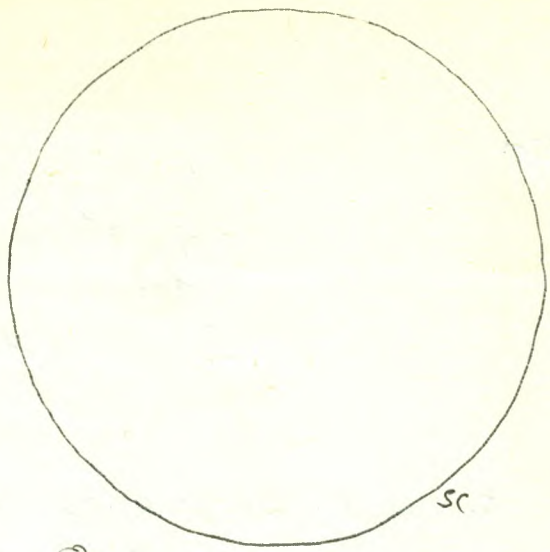
C8-32, 28, 20, 15.5
T.O.F.

T.-F. Mar. 20-21 01:00-02:00 UT - on Hwy. 38 from Kingston to Sherbrooke gml ne
Comet Hale-Bopp - very bright in NW. sky seen as I travelled home from a Federation meeting in Kingston



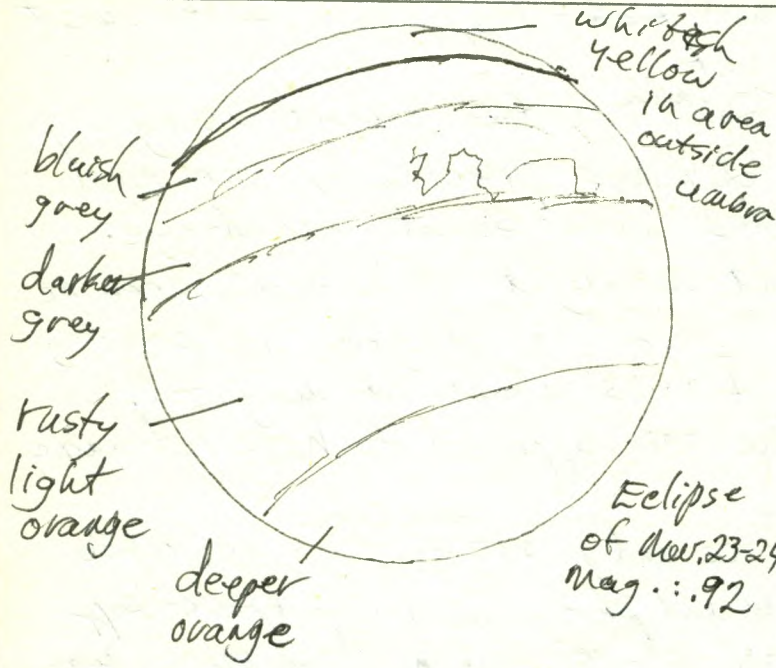
SC

Og
Os
RSNO Mar. 22
20:15-20:20UT

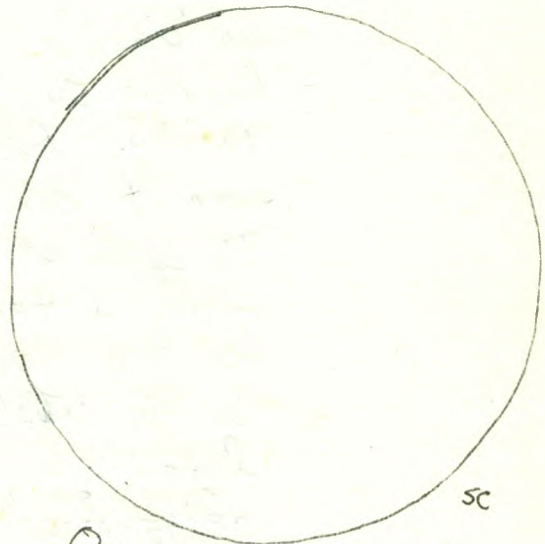


SC

Og
Os
RSNO Mar. 23
22:10-22:15UT



Eclipse
of Mar. 23-24
Mag. : .92



SC

Og
Os
RSNO Mar. 24
20:40-20:45UT

1997 Sa Mar. 22 20:15-20:20 UT SS
Sun Og Os RSNO

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

Sa-Su. Mar. 22-23 00:50-00:55 UT Y gml ne; 9x63b
Comet Hale-Bopp very bright with 1st ne tail
about 20° above NW horizon in spite of
very bright moonlight. Comet was at mag.
about -1.

Su. Mar. 23 22:10-22:15 UT t.
Sun Og Os RSNO

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

Su-M. Mar. 23-24 01:30 y fml ne; 10x25b
Comet Hale-Bopp - bright in NW at mag about -0.5
with tail evident ^{with} both the naked eye and the
binoculars.

02:30-05:10 UT SS, 00 fml; eclipsed moon 20x100b
C-8; camera: eclipsed moon - photographed at first focus

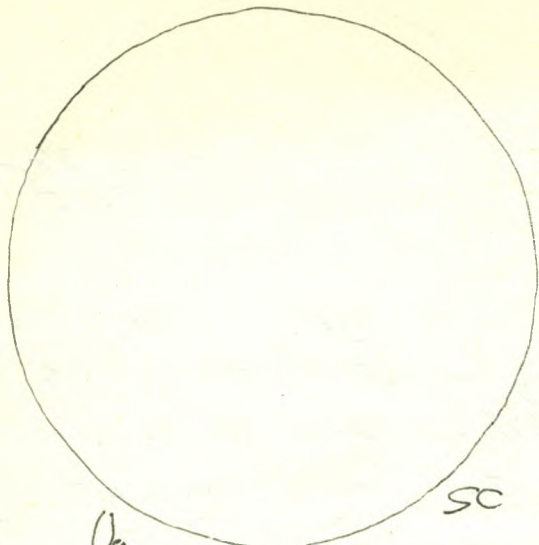
C-14: Mars at very high power - not well seen at
such high power; used C-14 to guide for
piggyback photographs using 50^{mm} lens and
135mm lens

20x100b: observed the "high magnitude" partial
lunar eclipse - A great instrument for
viewing the "colours of the eclipse" - yellow and
white at top - in area outside the umbra,
bluish-grey in the next area, grey below, and
rusty orange in the lower area. Mars was
nearby - about 10° NNW from the moon.
The moon was in Virgo. Skies clear until after mid-eclipse
First U. Contact: 02:57 UT Mid-eclipse: 04:39 UT
Last U. Contact: 06:21:30 UT. Naked-eye, darkening
"at about 7 o'clock position was noted about 2:30 well
before first contact. It was a fairly dark eclipse

M. Mar. 24 20:40-20:45 UT t
Sun Og Os RSNO

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

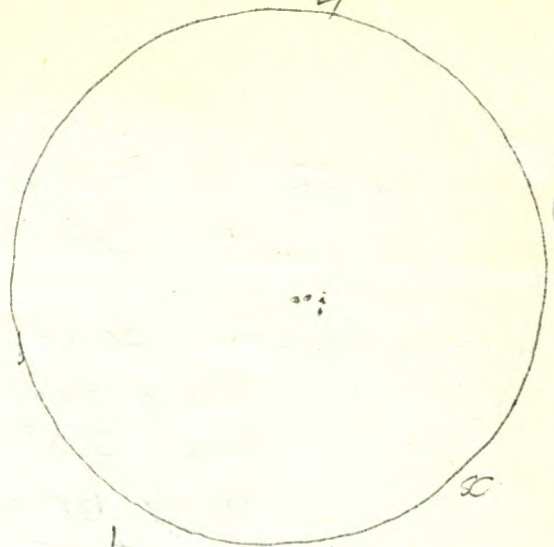
Partial
Lunar
Eclipse



Og
 OS
 RSN0

Mar. 27
 20:40-20:45UT

SC



4

1g
 45
 RSN14

Apr. 1.
 20:45-20:50

SC

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1997 M.-T. Mar. 24-25 01:00-01:40 UT y fml ne, 9x63b

comet
Hale-Bopp.

- observed and photographed Comet Hale-Bopp, at about mag. -1.0, easily seen long before e. a. t., and with a bright almost full moon rising in the E. A tail of over 1° could be seen ne. With the binoculars, the tail was superb

W.-Th. Mar. 26-27 01:40 UT

comet
Hale-Bopp.

- briefly observed Comet Hale-Bopp among the clouds - noticed it appearing extremely bright since it was seen without interference from moonlight, as had been the case on so many nights recently

Th. Mar. 27 20:40-20:45 UT t
sun O_g O_s RSN/O

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

Th.-F. Mar. 27-28 02:20-03:00 y s-8(?) T9 ne; 9x63b

Comet Hale-Bopp at about mag. -1.0 - very bright with dust tail very broad to ne.; in binoculars both the ion tail and dust tail very evident and wide apart, with both of them considerably ^{longer} ~~wider~~ than the field of view of the binoculars.

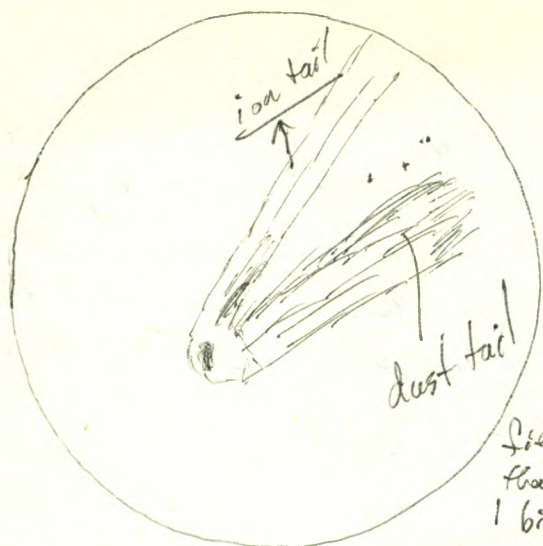
Mike and Luke Procter came over and we observed from west of the house in order to avoid the neighbour's house.

M.-T. Mar. 31-Apr. 1 01:50-02:20 UT nd s-8(?) T Varied 0-8-9 (cloud) ne; 7x35b

Comet Hale-Bopp, close to date and time of perigee, about mag. -1.0, in NW from about 20° to 10° in altitude, wide tail very prominent; clouds prevented prolonged study of the two tails.

Tu. Apr. 1 20:45-20:50 UT ss
sun lg 45 RSN/14

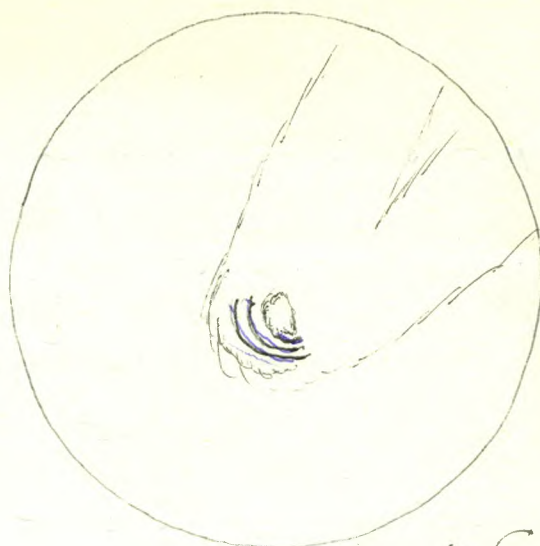
C-8, 32, 28, 20, 15.5
T.O.F.



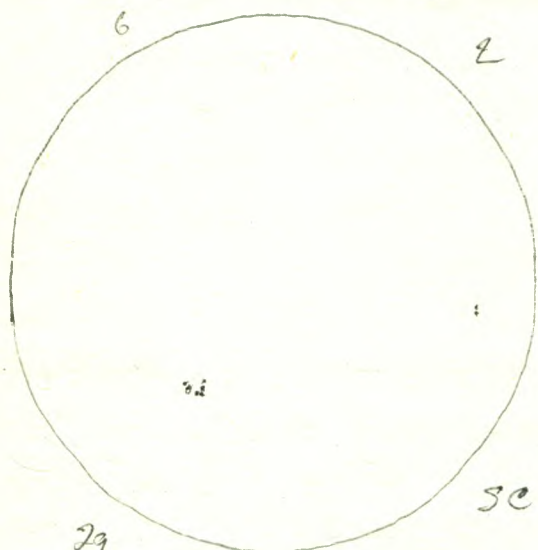
field larger
than
1 binocular
field

April-2
2:00 UT

Comet Hale-Bopp
as seen in 8x63 binoculars



Comet Hale Bopp in C-14
April-2
122X



29
85
RSN28

April 4
20:35-20:40 UT

1997

T.-W. Apr. 1-2 01:00-03:20 UT 3 places S-8? T 9.5! ne; C-14, 32; A

9x636

1) y

2) 00

3) shore of bay
north of the road

ne: Zodiacal light; Comet Hale-Bopp - brilliant in NW up 20° at beginning to 5° at end of session mag. - brighter than -1.0, near γ And., two tails easily seen ne.

9x636: Comet Hale-Bopp with the 2 tails very distinct The ion tail is considerably wider and more "fanned out" than before when it was very thin (see diagram)

C-14: 2 very clear concentric ring ^{sectors} on the sunward side of the coma of the comet, preceding the inner coma, and two very nebulous ring sectors, one inside very near the coma and one outside the two distinct ring sectors - a stunning view.

Photographed - both in the yard, ~~at~~ the telescope, and on the lakeshore north of the road - with Denise and Christine Kulyk.

W.-Th. Apr. 2-3 01:15-02:30 yard ss S-8 T 9-9.5! 9x636; C-8, 32

9x636: Comet Hale-Bopp with 2 tails easily seen both ne. and in the 9x636 as last night, ion tail probably 15° - 20° long

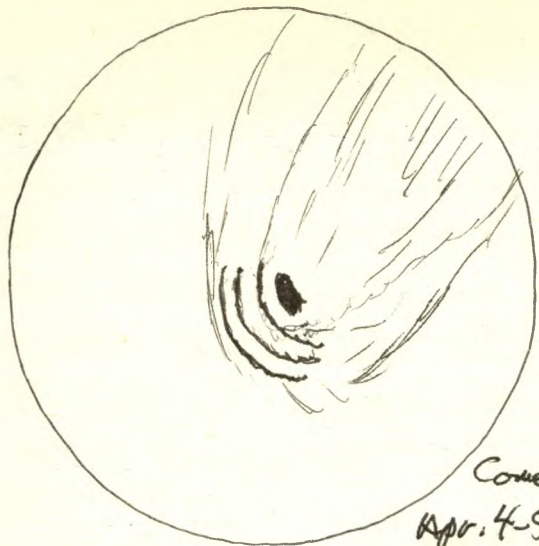
C-8: inner coma with heat, not very distinct of the concentric rings; mag. greater than -1.0

Photographed - both "garded on C-8" and from tripod.

F. Apr. 4 20:35-20:40 UT 35

Sun 2y 8s RSN 28

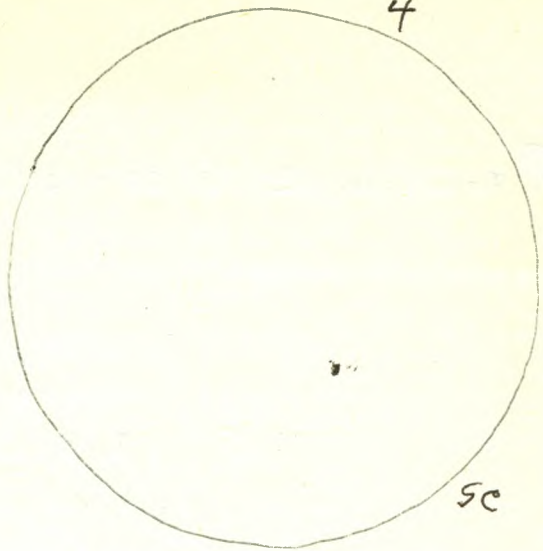
C-8, 32, 28, 20, 15.5
T.O.F.



Comet Hale-Bopp

Apr. 4-5

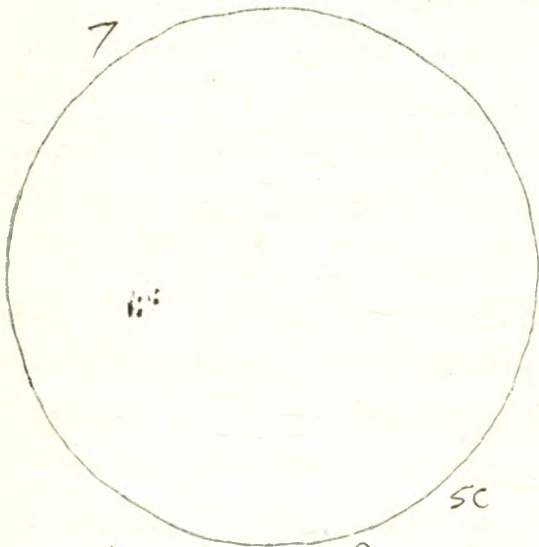
Three distinct concentric
ring-arcs seen before coma



4

SC

lg Apr. 6
45 19:50-19:55 UT
RSN 14



7

SC

lg Apr. 9
75 19:20-19:25 UT
RSN 17

1997.

F.-S. Apr. 4-5 01:00-02:50 UT $\gamma, 00$, across road S-8? T8-9 ne; 9x63, 20x100
 ne: Zodiacal light, constellations, 2 meteors.

9x63b: Comet Hale-Bopp - still magnificent, mag. ≈ -1.0 , both tails very long and distinct with ion tail more than 15° and dust tail $8^\circ-10^\circ$ probably. Ion tail appears more flared out and wider than before.

20x100b: M42, area of T Pyxidis, Comet Hale-Bopp,
 C-14: Mars; Comet Hale-Bopp with 3 distinct concentric ring-arcs in front of coma
 - photographed comet piggyback
 - also, tried to photograph comet from shoreline across the road, but clouds moved in after first photograph.

Su. Apr. 6

19:50-19:55 UT

SS

C-8, 32, 28, 20, 15.5

sun lg 45 RSN 14

A.P.F.

Su.-M. Apr. 6-7 01:00-02:00 UT γ S-8(?) T 9-9.5 ne; 9x63b

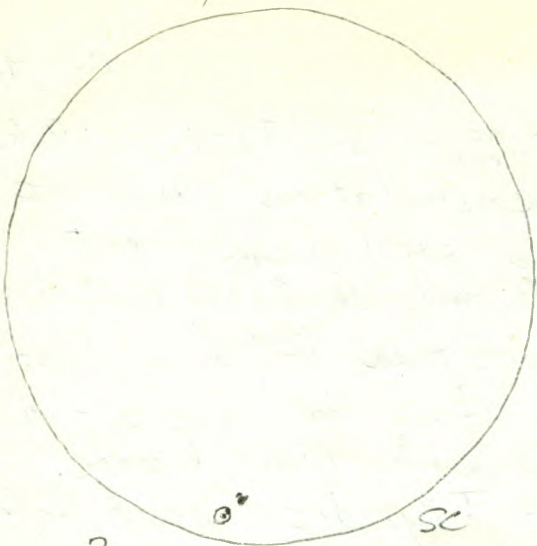
ne: Comet Hale-Bopp - brilliant at mag. > -1.0 among the very best views, with the dust tail very wide and easily seen about 10° in length. The ion tail was more difficult to see. The comet is a little more than half-way between γ Aad and β Per.

9x63b: Comet Hale-Bopp - quite spectacular with ion tail appearing perhaps shorter than previously - perhaps not as long as the dust tail; also Kemble's Cascade of stars in Cam.
 - photographed the comet.
 - Lightning was seen periodically throughout the observing session - in W and WNW.

W. Apr. 9 19:20-19:25 UT ϵ

sun lg 75 RSN 17

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



2g
4S
RSN24 Apr. 14
19:30 - 19:35 UT

TOP

APR 14 1964

1997 W.-Th. Apr. 9-10 01:30 - 02:30 UT y s-8(?) T9-9.5 ne; 9x63b

ne.: Zodiacal Light - excellent, waxing crescent moon,
Comet Hale-Bopp - mag. - 1.0 with dust tail very
wide and curving and $10^{\circ}+$ in length

9x63b.: Comet Hale-Bopp, just below Algol and not far
from M34. Ion tail seemed shorter than
previously - perhaps about $8^{\circ} - 10^{\circ}$ in length
The Aurora I had expected did not materialize.
News reports and a phone call from Howard Fowler
conveyed reports of a major solar flare on Monday.
Aurorae were expected tonight. Only a very
slight hint of a glow was seen near the end
of the session

- I photographed the comet - using tripod.

Th.-F. Apr. 10-11 01:30 - 02:40 UT y cml t9-9.5 ne; 9x63b

ne.: Aurora throughout session from single arc
at beginning - up about 20° with occasional
vertical bands; then later with arc moving up
to 30° or more and many vertical spikes - going
up almost to the zenith - very intense at
times and in certain spots, with notable horizontal
movement of the very intense spots (mainly red and yellow).

Aurora -
from solar
flare of
Mon. Apr. 7^o
briefly
very intense

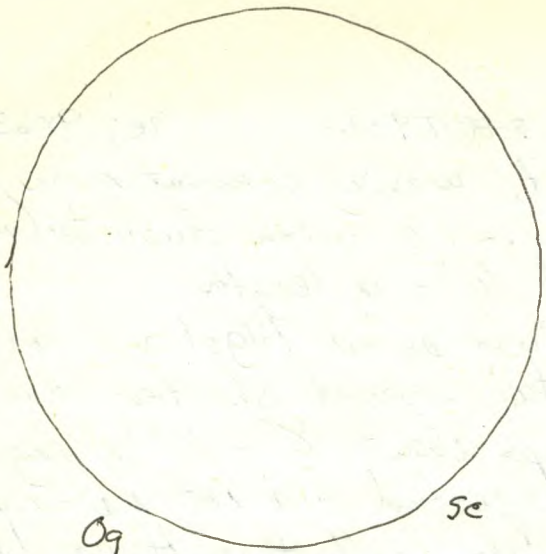
9x63b: Comet Hale-Bopp - excellent with dust tail
and ion tails about 10° or more - about mag. -1.0
In latter part of the session it was covered by
the expanding and upward-moving auroral arc.
I photographed the comet and the aurora.

M. Apr. 14 19:30 - 19:35 UT t. C-8, 32, 28, 20, 15.5
Sun 29 4/5 RSN 24 T.O.F.

M.-T. Apr. 14-15 02:00 UT nd fgml ne

Comet
Hale-Bopp

Comet Hale-Bopp - easily seen, even in twl and
with a First Quarter Moon - at mag. about -0.5.



Og
OS
RSNO

Apr 21
20:20-20:25 UT

Sc

1997

T.-W. Apr. 15-16 01:30-01:50 UT y f₂ ml 9x63b.

Comet Hale-Bopp - still up about 15° or more in the NW at the end of astronomical twilight. Dust tail easily seen for 2° or 3° or more in the binoculars, though the bright moonlight washed out the ion tail.

M. Apr. 21, 20:20-20:25 UT ss C-8, 32, 28, 20, 15.5
Sun 09 05 RSNO T.O.F.

M.-T. Apr. 21-22 01:25-01:30 UT y some cloud full ne; 9x63b

Comet Hale-Bopp

ne: Comet Hale, easily seen in NW at mag. -0.5 with 1/2° - 1° tail

9x63b: - comet seen with wide tail probably more than 1°, perhaps 2° or more, slightly brownish-yellow in colour; ion tail not seen because of moonlight; angle of tail now different from when last seen - now almost vertical, up 15° to 20° above NW horizon

Tu.-W. Apr. 22-23 02:55-03:00 UT nd full 9x63b

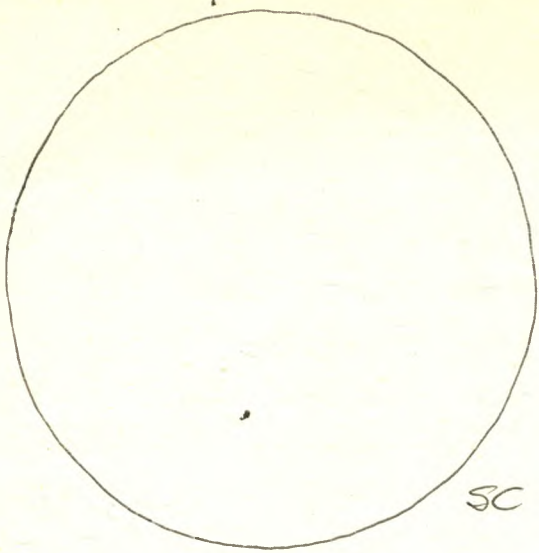
Comet Hale-Bopp - easily seen in binoculars but not easily seen ne.; tail slightly brownish-yellow in colour; ion tail not distinctly seen in the moonlight.

W.-Th. Apr. 23-24 01:30-01:40 UT y, nd ne; 9x63b

Comet Hale-Bopp

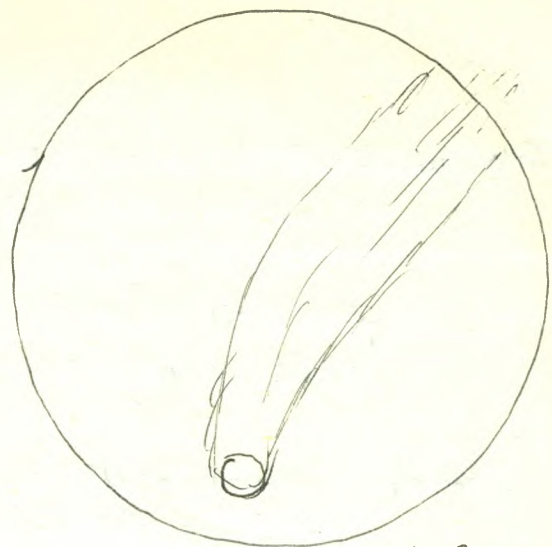
ne: Comet Hale-Bopp, easily seen with clouds interfering with the moonlight; comet about mag. 0.; gas tail about 1° or so

9x63b: Comet Hale-Bopp, ion tail not clearly seen because of the bright sky; dust tail about 1° to 2° in length and fairly wide, perhaps slightly brownish-yellow in colour.

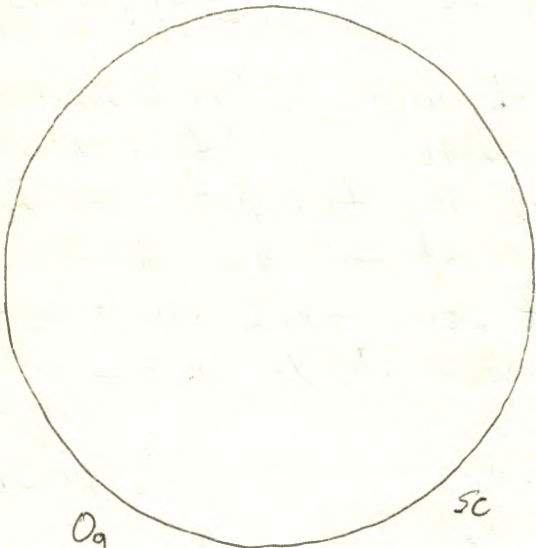


SC

1g
1S
RSN/11
Apr. 26
19:35-19:40 UT

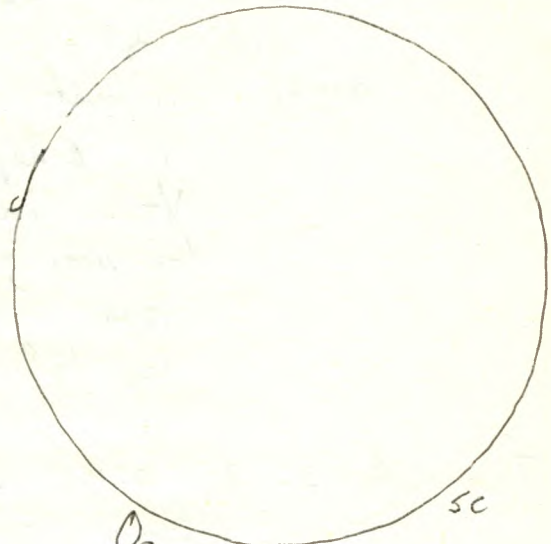


9x636 field. Comet Hale-Bopp
Apr. 28-29 with very curving dust tail



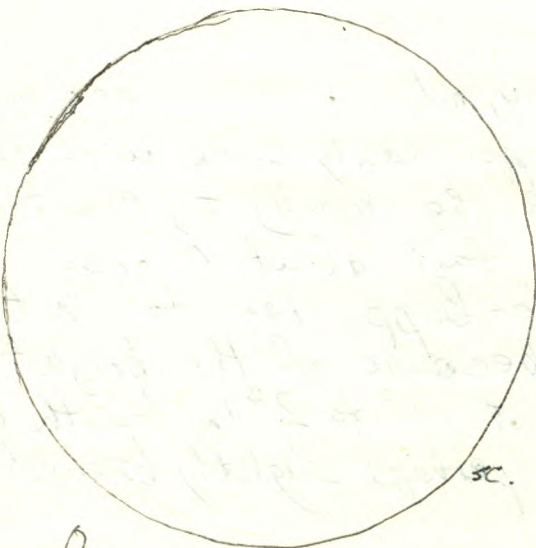
SC

Og
Os
RSNO
Apr. 29
19:50-19:55 UT



SC

Og
Os
RSNO
May 2
19:15-19:20 UT



SC

Og
Os
RSNO
May 4
19:30-19:35 UT

1997 Apr. 26 19:35-19:40 UT ~~st~~
Sun lg ls RSN11

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

Sa.-Su. Apr. 26-27 01:54-02:34 UT y S-8, T9 ne; 9x63b

Comet
Hale-Bopp.

ne: constellations; Comet Hale-Bopp with dust tail
wide and curving and about 8° - 10° in length -
about mag. 0., Zodiacal Light
9x63b: Comet Hale-Bopp with ion tail visible but
fainter than formerly; dust tail longer than
the diameter of the field of the binoculars,
bright and curving; M35, M36, M37,
M38, Kemble's Cascade in Cam.

M.-T. Apr. 28-29 02:20-02:25 UT y S-8? T9 ne; 9x63b

Comet Hale-Bopp

ne: Zodiacal Light; Comet Hale-Bopp - about 8° - 10°
above NW horizon - about $\frac{1}{2}$ hour after E.A.T.
9x63b: Comet Hale-Bopp, at about mag. 0. with
very curving dust tail whose length filled the
field of the binoculars - probably more than 10°
Ion tail scarcely visible.

Fri. Apr. 29 19:50-19:55 UT t
Sun Og Os RSNO

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

F. May 2 19:15-19:20 UT t
Sun Og Os RSNO

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

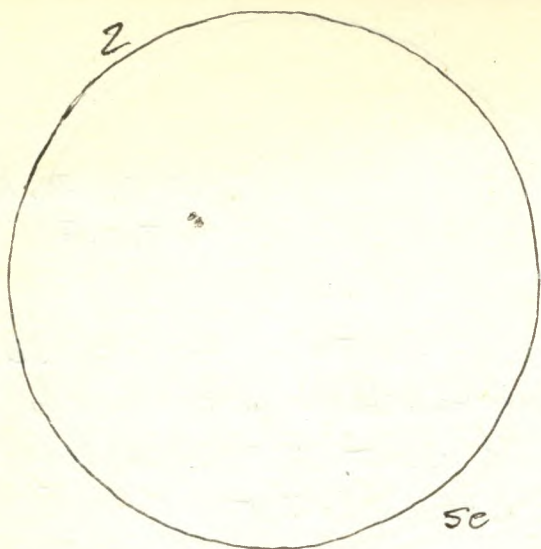
F.-S. May 2-3 01:30-01:40 UT y tw and some cloud 9x63b
Comet Hale-Bopp in NW about 15° above horizon, seen very
poorly because of haze and cloud and twilight.

comet
Hale-Bopp

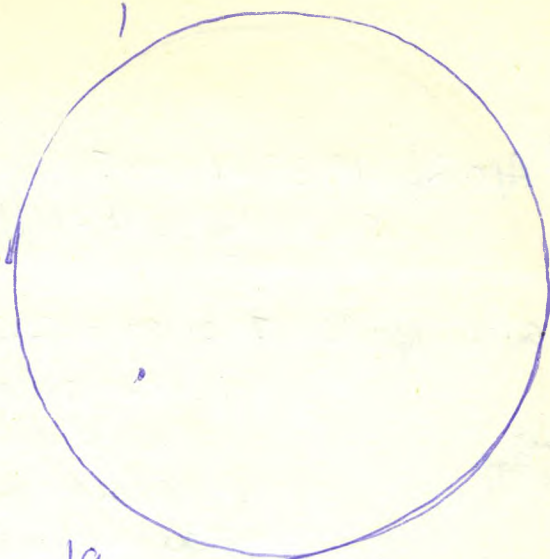
Su. May 4 19:30-19:35 UT ss
Sun Og Os RSNO

C-8, 32, 28, 20, 15.5
A.P.F.

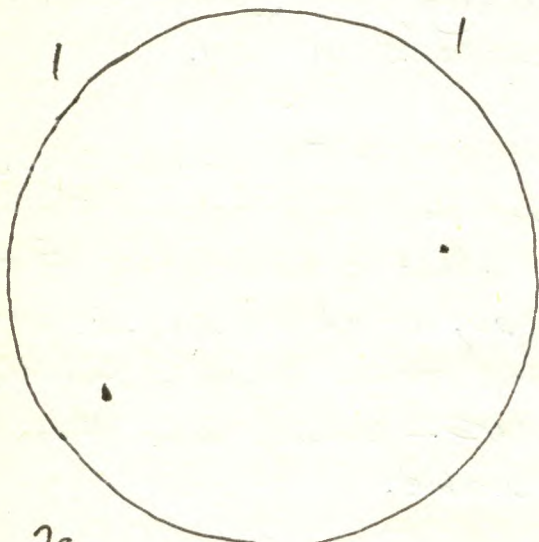
W.-Th. May 7-8 01:50-01:55 UT in late twilight 9x63b.
Comet Hale-Bopp at about 10° alt. in NW about mag. 1 + 1° tail



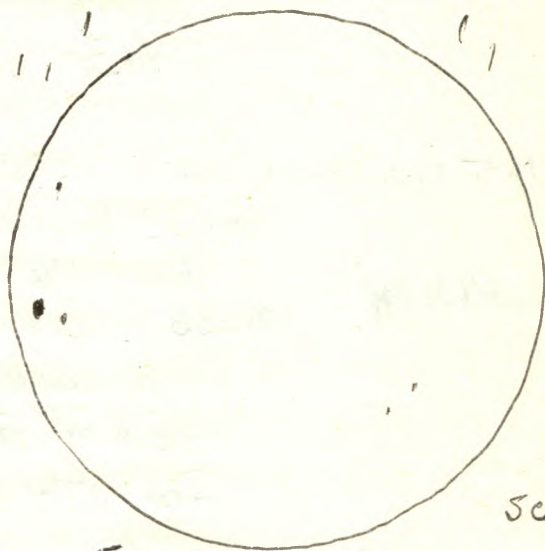
1g
2s
RSN12
May 10
21:25-21:30 UT



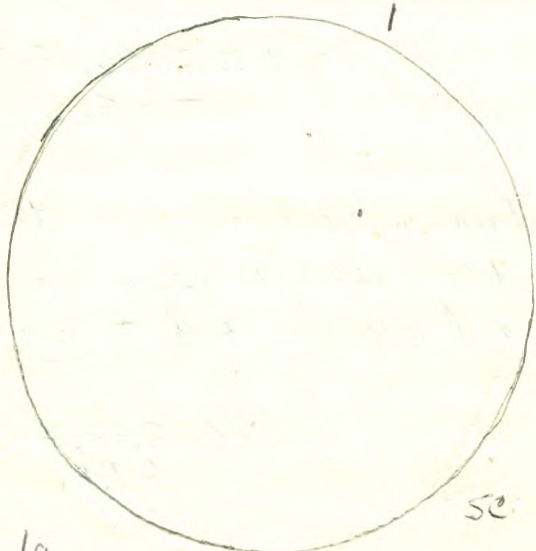
1g
1s
RSN11
May 14
20:35-20:40 UT



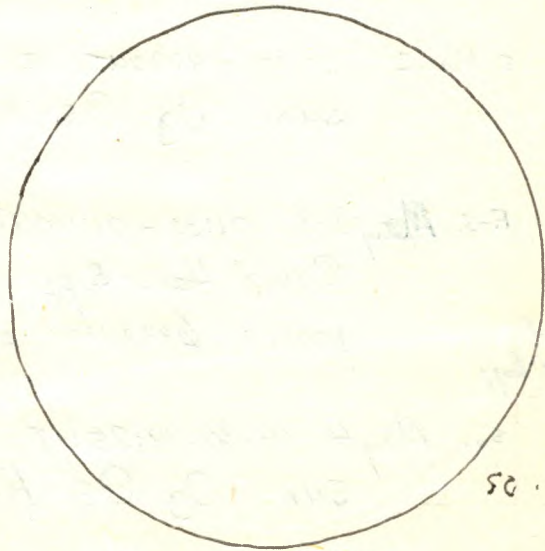
2g
2s
RSN22
May 23
19:50-19:55 UT



5g
5s
RSN55
May 25
19:45-20:30 US



1g
1s
RSN11
May 26
20:35-20:40 UT

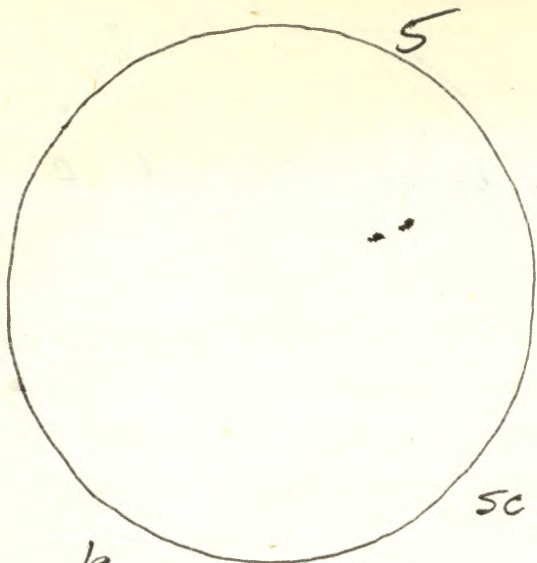


0g
0s
RSN0
May 27
19:30-19:35 UT

1997

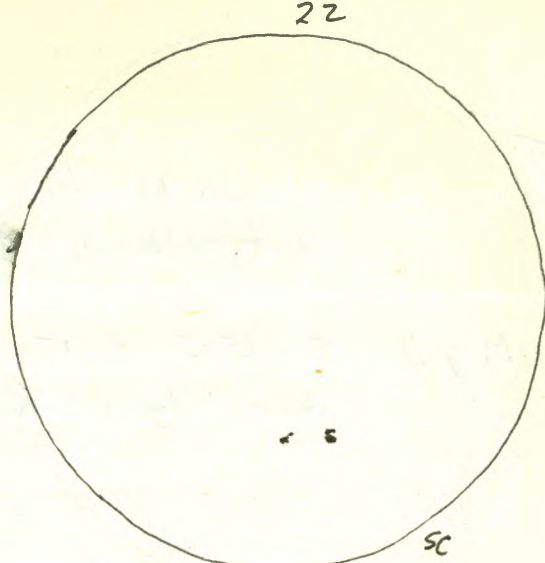
about 15-20 minutes before the end of
astronomical twilight

- May 10 21:25-21:30 UT t C-8, 32, 28, 20, 15.5
sun 1g 2s RSN12
- May 14 20:35-20:40 UT t C-8, 32, 28, 20, 15.5
sun 1g 1s RSN11 T.O.F
- May 18-10 01:50-02:00 UT y 9x63b
-looked for Comet Hale-Bopp low in NW
amid clouds but did not see it.
- F May 23 19:50-19:55 UT t C-8, 32, 28, 20, 15.5
sun 2g 2s RSN22 T.O.F
- Su. May 25 19:45-20:30 UT ss C-8, 32, 28, 20, 15.5
5g 5s RSN55 T.O.F
guest observers during a cloud-filled session:
Jensy Blind
Denise Saba
- M May 26 20:35-20:40 UT t C-8, 32, 28
sun 1g 1s RSN11 T.O.F
- T. May 27 19:30-19:35 UT t C-8, 32, 28, 20, 15.5
sun 0g 0s RSN0 T.O.F
- Su. June 1 21:20-21:25 UT t C-8, 32, 28, 20, 15.5
sun 1g 5s RSN15 -hazy clouds T.O.F
- W. June 3 19:50-19:55 UT ss C-8, 32, 28, 20, 15.5
sun 2g 2s RSN22 T.O.F



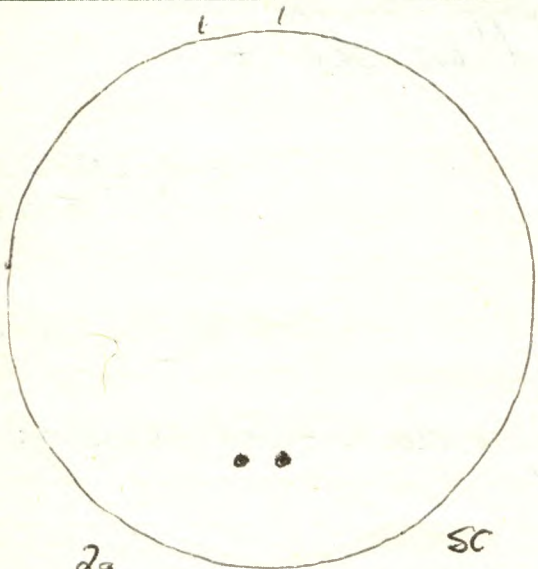
1g
5s
RSN15

June 1
20:20-21:25 UT



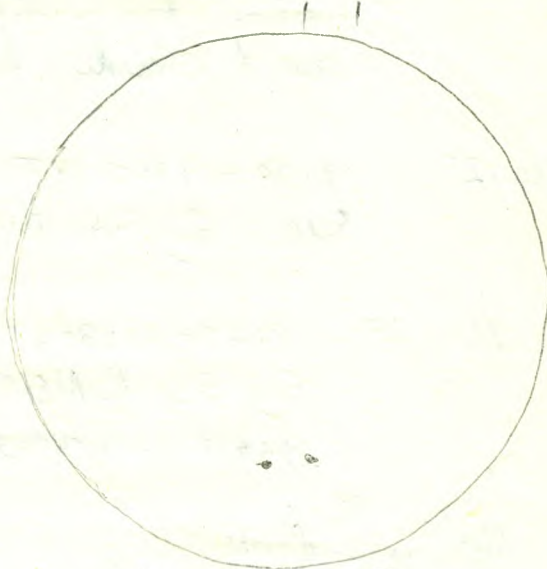
2g
2s
RSN22

June 3
19:50-19:55 UT



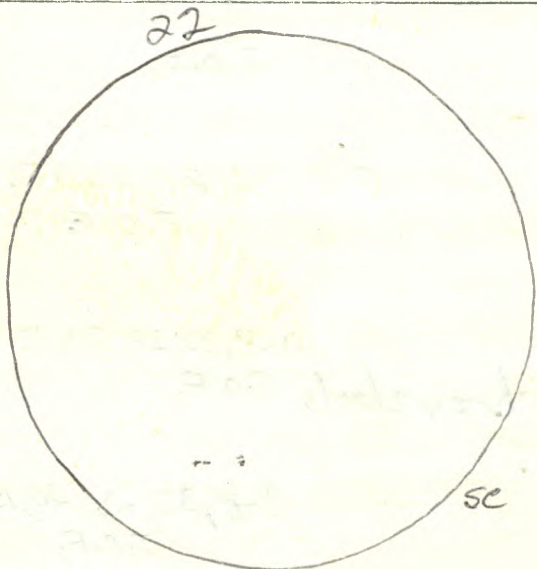
2g
2s
RSN22

June 4
19:45-19:50 UT



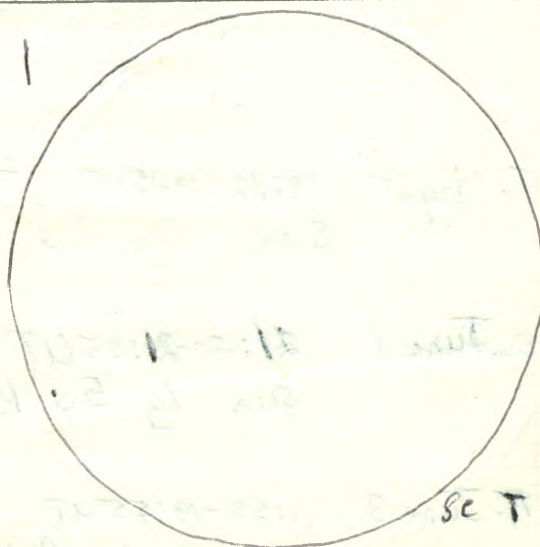
2g
2s
RSN22

June 5
22:35-22:40 UT



2g
#5
RSN24

June 6
20:50-20:55 UT



1g
1s
RSN11

June 8
20:50-20:55 UT

1997

W. June 4 19:45-19:50 UT SS
sun 2g 2s RSN22

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

Th. June 5 22:35-22:40 UT t
sun 2g 2s RSN22

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

F. June 6 20:50-20:55 UT SS
sun 2g 4s RSN24

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

F.-S. June 6-7 02:40-04:00 UT 00 S-8(1) T5 (haze) ^{ne:} C-14, 32
ne: some stars in spite of the heavy haze and
some clouds

C-14: M57. The haze made it difficult to
see other objects, and so they were not
seriously attempted

S.-S. June 7-8 01:20-01:30 UT ^{in car on Hwy 38} returning from Halleford ne
-glimpsed the thin crescent moon in W. It
was less than 3 days old.

Su. June 8 20:50-20:55 UT SS
sun 1g 1s RSN11

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

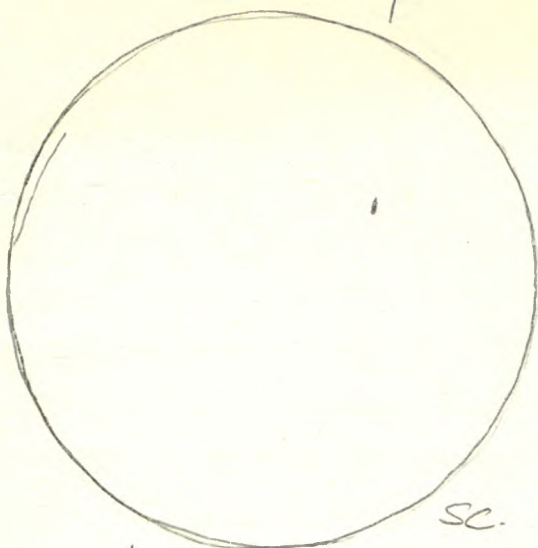
Sat.-M. June 8-9 04:00-04:05 UT nd S8(1) T8-9 ne
fairly bright Aurora from N. to NE with
Aurora bright glow up about 20° and vertical bands and
spikes up about 45° with widest band in NW; also, a
patch of Aurora in W. Later the sky became cloudy
and I did not observe any Aurora later in the
night.

Tu. June 10 20:25-20:30 UT SS
sun 1g 1s RSN11

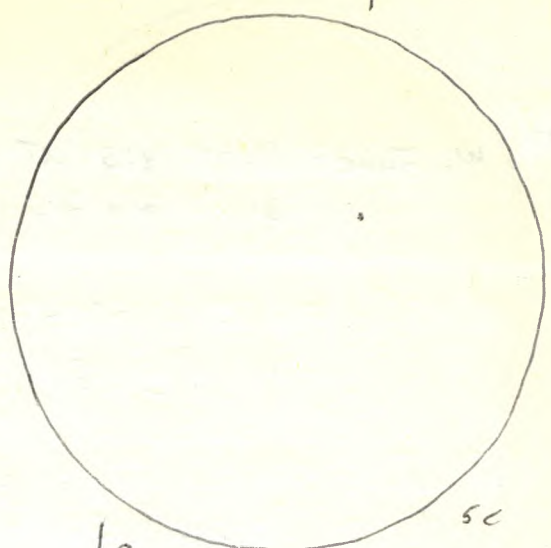
C-8, 32, 28, 20, 15.5
T.O.F.

W. June 11 19:30-19:35 UT SS
sun 1g 1s RSN11

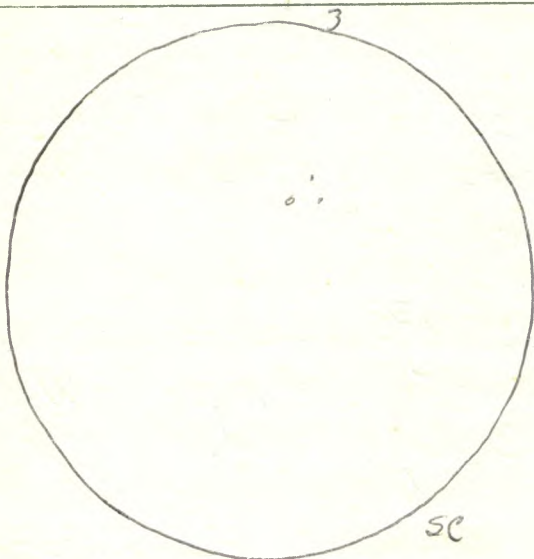
C-8, 28, 20, 15.5
T.O.F.



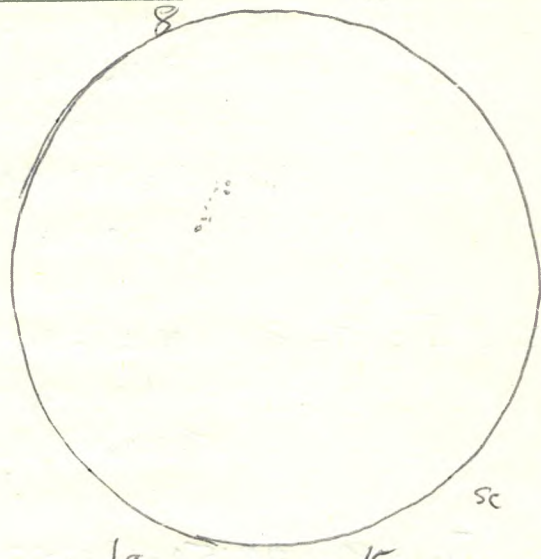
1g
1s
RSN11 June 10
20:25-20:30UT



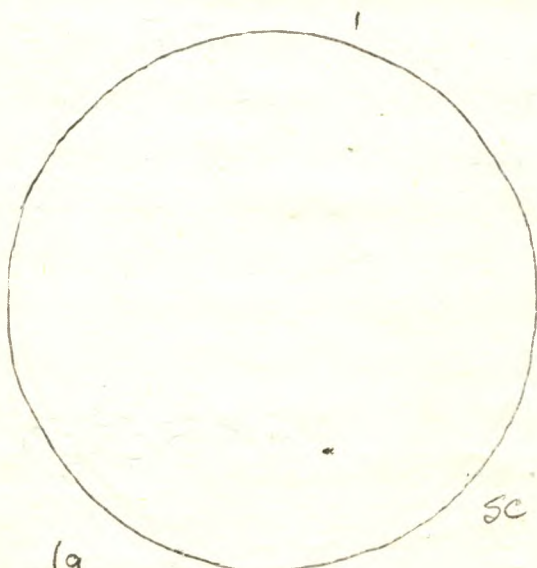
1g
1s
RSN11 June 11
19:30-19:35UT



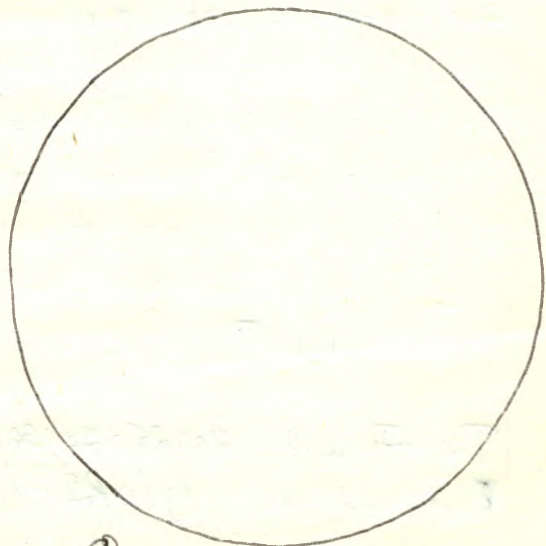
1g
3s
RSN13 June 14
20:45-20:50



1g
8s
RSN18 June 15
21:20-21:25UT



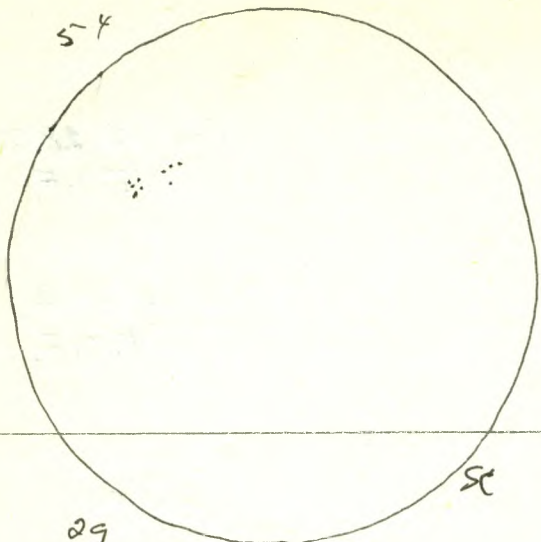
1g
1s
RSN11 June 19
20:30-20:35UT



Cg
0s
RSN0 June 22
19:05-19:10UT

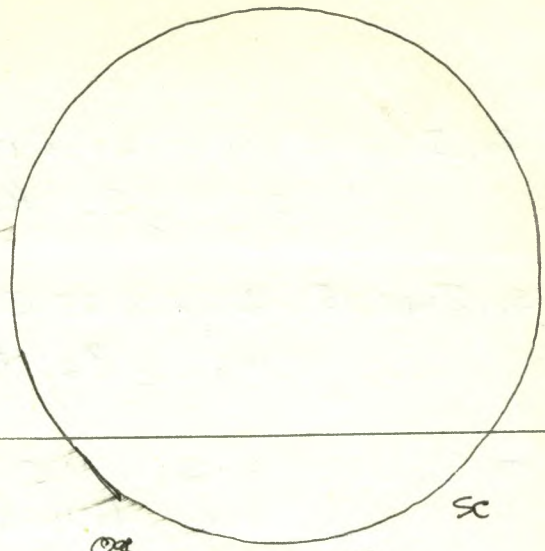
1997

- Sa. June 14 20:45-20:50 UT SS C-8, 32, 28, 20, 15.5
sun 1g 3s RSN13 T.O.F.
- Sa. June 15 21:20-21:25 UT t C-8, 32, 28, 20, 15.5
sun 1g 8s RSN18 T.O.F.
- Th. June 19 20:30-20:35 UT SS C-8, 32.
sun 1g 1s RSN11 T.O.F.
- Sa. June 22 19:05-19:10 UT SS C-8, 32, 28, 20, 15.5
sun 0g 0s RSNO T.O.F.
- Th. June 26 21:05-21:10 UT SS C-8, 32, 28, 20, 15.5
sun 2g 9s RSN29 T.O.F.
- F. June 27 21:45-21:50 UT t C-8, 32, 28, 20, 15.5
sun 0g 0s RSNO T.O.F.
- Sa. July 5 18:30-18:35 UT C-8, 32, 28, 20, 15.5
sun 0g 0s RSNO T.O.F.
- Sa. - Sa. July 5-6 03:00-05:50 UT S-879 ne; 9x636
ne: several meteors, summer constellations (Cathy Hall observed
9x636: M13, M22, M39, M6, M7, areas of Cygnus, areas of
Summer Milky Way. meteors.)
- Su. July 6 17:50-17:55 UT C-8, 32, 28, 20, 15.5
sun 0g 0s RSNO T.O.F.
- S.-M July 6-7 00:40-01:40 UT silver Lake Provincial Park ne; 10x50b
with Dease I observed the slender crescent
Moon and Venus above in the WNW sky
at about the time of and shortly after
sunset. There was some cloud in the
area, but it was still possible to photograph



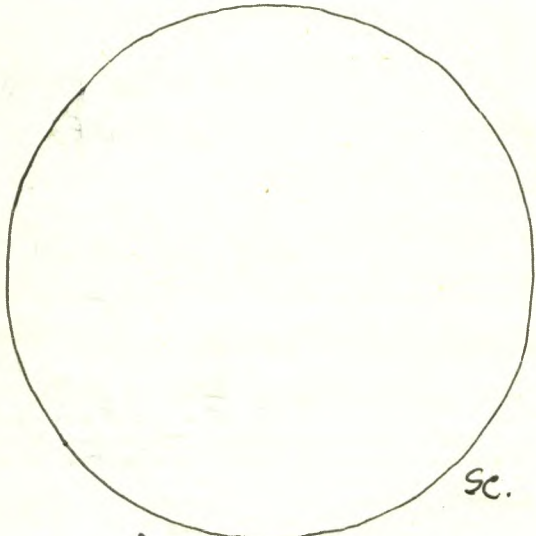
29
75
RSNO

June 26
21:05-21:10 UT



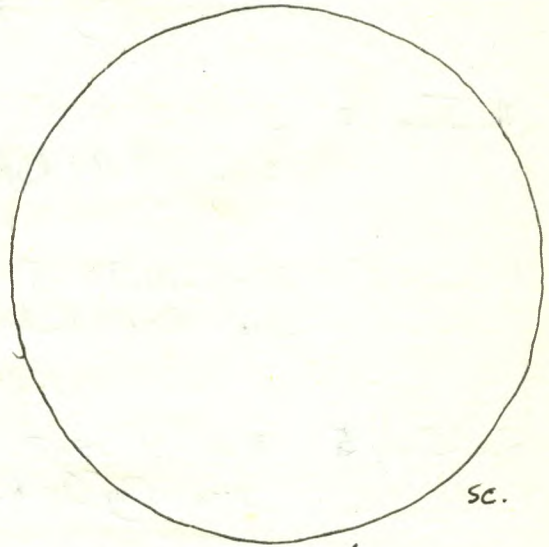
03
05
RSNO

June 27
20:45-20:50 UT



09
05
RSNO

July 5
18:30-18:35 UT



09
05
RSNO

July 6
17:50-17:55 UT

July 6-7

Venus

July 7-8

Venus

W
Venus and crescent moon
as seen from Silver Lake,
about 45 min. after sunset
Sunset: 00:52 UT (8:52 pm, E.D.T.)

W
Venus and Crescent Moon
as seen from Silver Lake
about 45 min after sunset
Sunset: 00:52 UT (8:52 pm, E.D.T.)

1997

the area quite easily
02:00-03:40 UT y S-9(?) T 9.5!

ne
summer constellations, a few meteors, either sporadics
or members of minor showers.

Very good transparency! However, I simply did
not feel like observing very late. Fireflies were
very plentiful.

M. July 7. 20:00-20:05 UT t.
Sun Og Os RSN0

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

M.-T. July 7-8 00:40-01:50 UT Silver Lake before and camera
Provincial Park full ne and

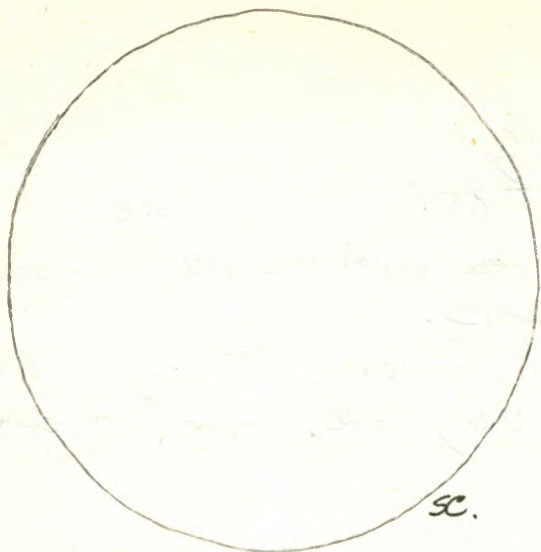
I went to Silver Lake to observe Venus and
Crescent Moon in WNW sky - second night in a
row. The area of sky was spectacularly
clear. They were about 10° apart, and about
of equal height above the ground. I spotted
the Moon 12^{min} before sunset (at 00:40 UT -
8:40 p.m. E.D.T.) but did not see Venus until
01:02 UT (9:02 p.m. E.D.T.), 12 minutes after sunset,
with the camera lens (200 mm lens) and 01:06 UT
(9:06 p.m. E.D.T.) ne. It was easy to photograph
the moon and Venus with the 135 mm lens
but they were too far apart to photograph
using the 200 mm lens.

03:30 - 05:45 UT 00 S-9.79 20x100b; C-14, 32

20x100b: M22, Jupiter and 4 moons, area of NGC 2655
(Finest NGC # 38) by star-hopping N from
M81 and M82, but not satisfied with having
seen it because of its mag. (10.1) and its
small size, M11.

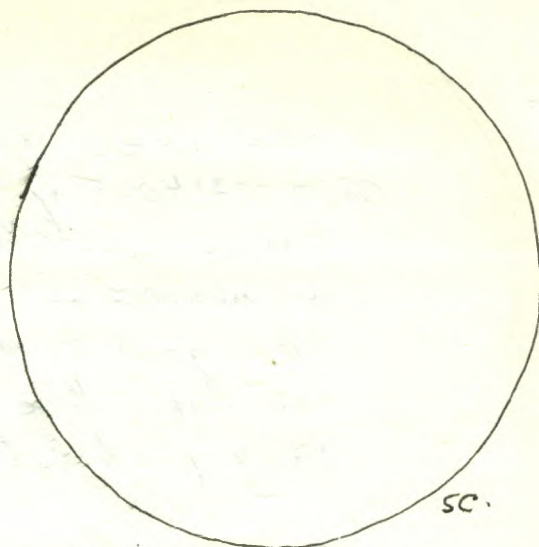
e-14, 32: M92, NGC 4605 (Finest NGC # 48)
a thin edge-on spiral galaxy, found by
star-hopping N. from ϵ UMa, Jupiter and
4 moons, the bands being quite distinct,

NGC 4605



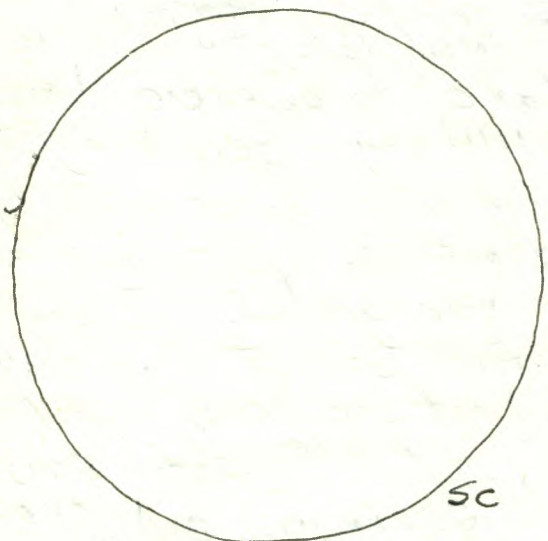
SC.

Og July 7
Os 20:00-20:05 UT
RSNO



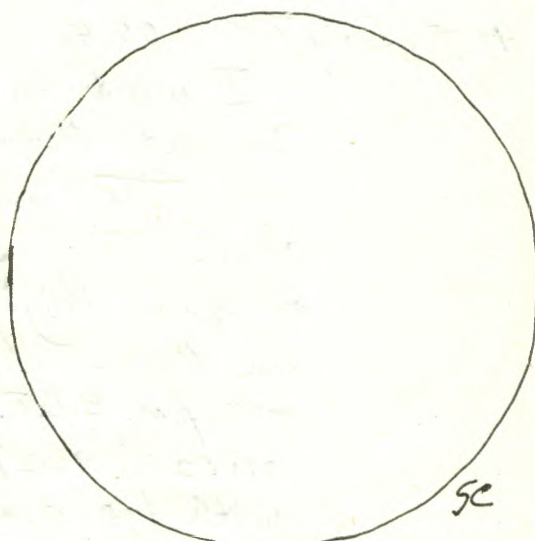
SC.

Og July 9
Os 19:15-19:20 UT
RSNO



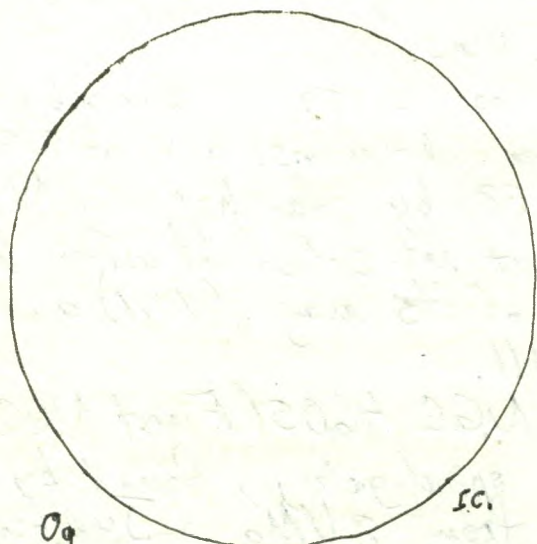
SC

Og July 10
Os 18:35-18:40 UT
RSNO



SC

Og July 11
Os 18:55-19:00 UT
RSNO



SC.

Og July 18
Os 20:20-20:25 UT
RSNO



SC

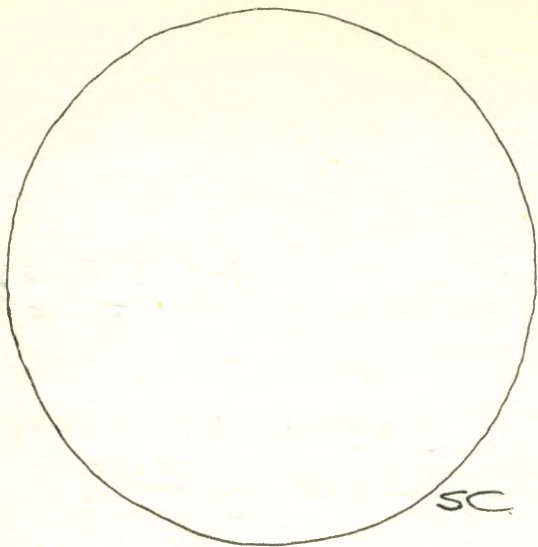
Og July 19
Os 20:15-20:20 UT
RSNO

1997

and M57.

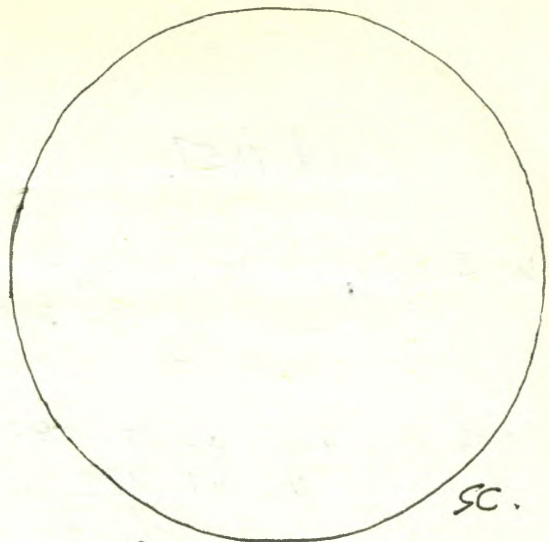
- W. July 9, 19:15-19:20 UT t
Sun O_g O_s RSNO C-8, 32, 28, 20, 15.5
T.O.F.
- W.-Th. July 9-10 03:45-04:00 UT y S-9? T9 briefly 9x636
M6, M7, M22, areas of Scorpius and Sagittarius.
Then clouds moved in.
- Th. July 10 18:35-18:40 UT t
Sun O_g O_s RSNO C-8, 32, 28, 20, 15.5
T.O.F.
- Th.-F. July 10-11 04:00-06:45 UT y S-8-9(?) T9-9.5(!) 20x100b
M8, M20, M21, M11, M16, M17, M18, M24, M22, M28,
Jupiter and two moons, Uranus, S Cap (near Uranus)
at about mag. 9 (U344), Neptune, M75 - north of
south of Neptune (U343), several meteors.
- F. July 11 18:55-19:00 UT t
Sun O_g O_s RSNO C-8, 32, 28, 20, 15.5
T.O.F.
- F. July 18 20:20-20:25 UT t
Sun O_g O_s RSNO C-8, 32, 28, 20, 15.5
T.O.F.
- Sa. July 19 20:15-20:20 UT
Sun O_g O_s RSNO C-8, 32, 28, 20, 15.5
T.O.F.
- Sa.-Su. July 19-20 03:30-04:00 UT y fml ne
- northern constellations and some others. I was interested
in observing on about the third day after my cataract
surgery for the lens implant for my right eye. The
stars appeared quite good with both eyes and
much closer to point sources than before the
surgery.

Uranus,
Neptune



SC

Og July 22
Os 19:45-19:50UT
RSNO



SC.

Og July 24
Os 19:45-19:50
RSNO

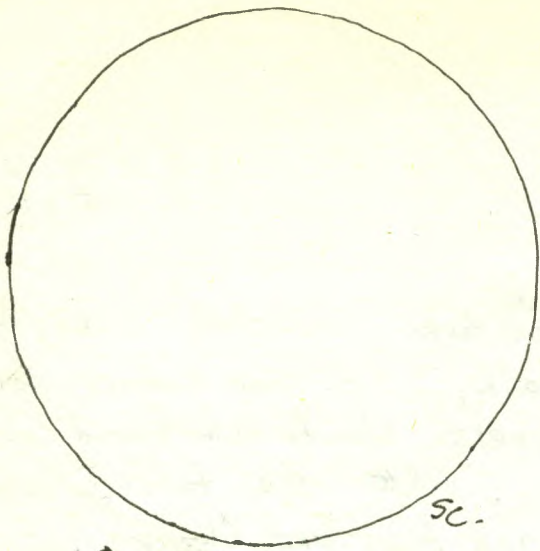
1997 Tu. July 22 19:45-19:50 UT t C-8, 32, 28, 20, 15.5
sun Og Os RSNO T.O.F.

WTh July 23-24 02:00-03:00 UT ^{Sandbanks} Provincial Park twl ne; Ast ^{28,} ₁₉
During and after Denise's talk, I saw some summer stars and constellations, but in general clouds interfered considerably with the observing session. After the talk I tried to show some people Vega and Alcor and Mizar, but clouds were a problem. Bill Broderick and Frank Hitchings were also present with their telescopes. We ended the observing session early - at about 3:00 UT (11:00 p.m. E.D.T.).

Th. July 24 19:45-19:50 UT t C-8, 32, 28, 20
sun Og Os RSNO.

Mercury
Th.-F. July 24-25 00:40-02:00 UT ^{Silver Lake} Provincial Park twl ne; 135mm camera lens
In spite of considerable cloud in the W and NW I tried to observe a "line-up" of Venus, Regulus, and Mercury above the WNW horizon and expected to see them best at about 01:40 UT (9:40 p.m. E.D.T.), but I was sure of seeing only Mercury as it moved from about 2° to about $\frac{1}{2}^\circ$ above the WNW horizon, over a period of about 25 minutes about 01:35 to 01:50 UT. (9:35 to 9:50 p.m. E.D.T.).

Fr.-S. July 25-26 00:40-03:30 UT at Darling Hill, NY twl, after ne; 16", 32, 40 S-879
- ne: Venus in W and constellations, several meteors
- with Ray Dague's rich-field refractor: - Venus low in W, and very small, scarcely large enough to see as a disk, just possibly visible as about quarter phase, though with considerable uncertainty - mainly as reported by Ray Dague
- with 16" Cave telescope in the observatory: - M8, M20, M57, M22, M11, M31, Alcor and Mizar with Mizar easily split, Jupiter and 4 Galilean moons on the same side of the planet. Denise and I generally operated the telescope for the first



50.

Og July 28
OS 19:45-19:50 UT
RSNO

generally operated the telescope for the first
on the same side of the planet. James and I
Misson easily split. I waited until Golden was
M30, M31, M32, then did that out
with 12" Casse telescope in observatory. M31
residents' apartment - easily distinguished in the
just nearby. It is a red giant star of our
out very well, especially large stars in a star
with 4000 Angstroms in the field of view. This is W,
- as there is W and 4000 Angstroms, some spectra
first 200 Angstroms. 4000-5000 Angstroms. This is W,
about 19:35 to 19:50 UT. (19:35 to 19:50 UT.)

1997

part of the evening. Conditions were generally excellent. Attendance at the seminar in general was not as good as in many previous years. The following afternoon at the "Paper Talks" Denise spoke about her upcoming eclipse plans for February 1998. Among the door prizes which were given out we won a Meade Series 4000 8.8mm Ultra-Wide Angle Eyepiece. In the Photography Contest, many of the photos were of Comet Hale-Bopp. I submitted 5 photos. One was a 3rd-place winner in the category: "Slide of Hale-Bopp". Doug Angle had an excellent photograph of the comet, and was the 1st-place winner. Another was a 2nd-place winner in the category: "Artistic Slide of Hale-Bopp". The guest speaker for the Summer Seminar was Dr. John Delano, Associate Professor and Chair, Department of Earth and Atmospheric Sciences, State University of New York at Albany. He spoke about the debate on the possibility of life on Mars.

S.A.S.

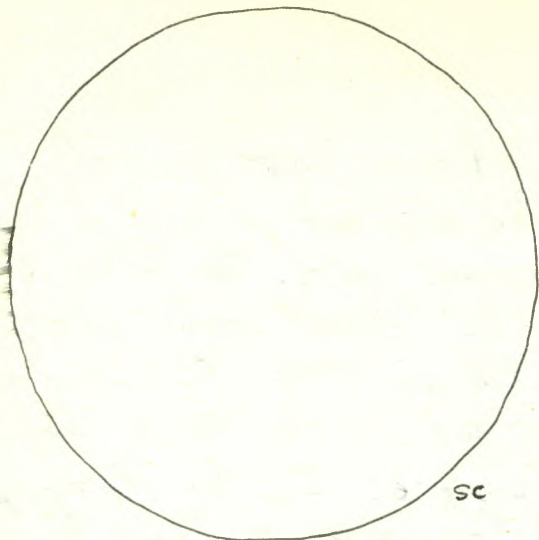
S.-M. July 27-28 03:00 - 04:08 yard t s-8? T 8-9 some cloud ne; C-8, P.8
 ne: summer constellations; several meteors, one or two of which might have been S. δ Aquarids.

Jupiter!

C-8: Jupiter and 4 Galilean moons - viewed using the new 8.8mm Ultra-Wide Angle Eyepiece which Denise and I had won at the S.A.S. Summer Seminar last Saturday night. The view was very detailed and crisp - probably one of the best views I have seen with the C-8 telescope

M. July 28 19:45 - 19:50 UT C-8, 32, 28, 20, 15.5
 sea of Os RSNO T.O.F.

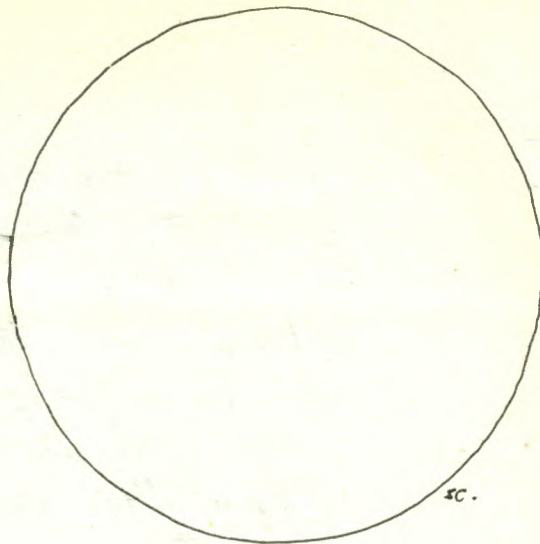
M.-T. July 28-29 01:30 - 04:10 UT twl; later s-9(?) T 9.5! ne; 20x100b
 ne: constellations; several meteors - possibly S δ -Aquarids and Perseids



sc

Og
Os
RSNO

July 29
20:15-20:20 UT



sc.

Og
Os
RSNO

July 30
20:30-20:35 UT

1997

20x100b - Jupiter and 4 moons, M15, M16, M17, M18, M18, M20, M21, M22, M11 and R Scafi area, area of Barnard's Star

Tu. July 29 20:15 - 20:20 UT
sun O_g O_s RSNO

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

T.W. July 29-30 ~~at~~ 02:45 - 04:30 UT 00 5-7-8(?) + 9.5-10! ^{C-14, 55, 88} ne; 20x100b; ₁

meteors

ne: constellations; several Meteors - members of Perseid Shower and S. S. Aquarid shower.

20x100b: M28, M22, M8, M20, M21, M11, M16, M17, M18, M24, M31, M32, M110, the asteroid Pallas - found by using the star map in the Astronomical Calendar 1997, page 53. It was about mag. 9.8 in constellation Sagitta.

Pallas

C-14: M57, M13, Jupiter, Saturn. I tried to use the new Meade Ultra-Wide Angle Eyepiece on a number of objects, but viewing was not as good as previously with the C-8 on Jupiter. "Dewing" was a problem with the C-14. I also photographed areas of the Summer Milky Way using the 85^{mm} lens-piggyback.

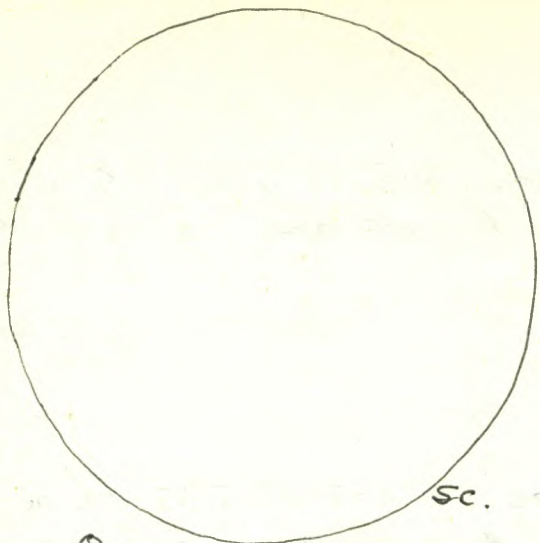
W. July 30 20:30 - 20:35 UT t
sun O_g O_s RSNO

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

W.-Th. July 30-31 02:30 - 04:40 UT y 5-8(?) + 9-9.5 ^(same cloud at beginning) ne
summer constellations. There were quite a few meteors, some Perseids and some S. S. Aquarids.

15-20 min. active
Aurora

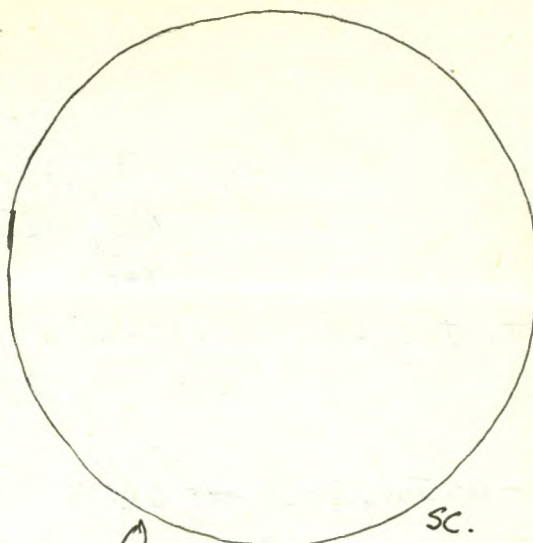
There was an auroral glow in the N. throughout the session, but it became brighter and more active from the end of Astronomical Twilight until about 03:00 UT (i.e., from about 02:40 until 03:00). For that short period it was slightly reddish and had several spikes reaching up 40-45° high. There was one spike further in the N.W.



sc.

Og
Os
RSNO

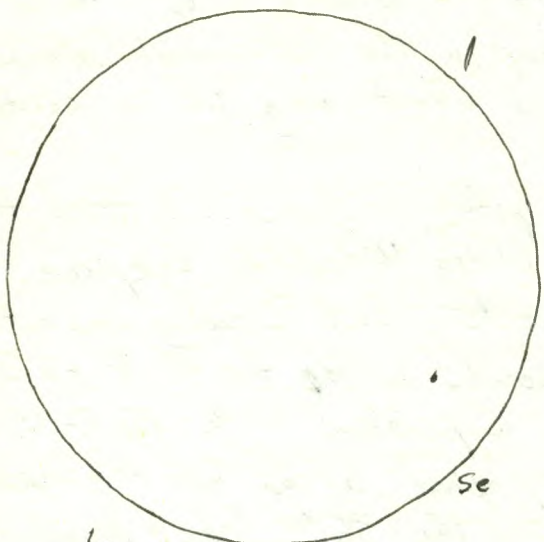
July 31
20:15-20:20UT



sc.

Og
Os
RSNO

Aug. 2.
19:40-19:45



sc

lg
ls
RSNH

Aug. 3
18:30-18:35UT.

[Faint, illegible handwritten text visible through the paper from the reverse side.]

1997

Th. July 31 20:15-20:20 UT t
 Sun O_g O_s RSN₀

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

Th.-F. July 31-Aug. 1 02:00-05:30 UT S-8(?) T9 (for about $\frac{1}{2}$ hour) ^{at 04:00 UT} ne; C-14, 40, 8.8; ^{20x100b} M

meteors

ne: constellations; meteors - both Perseids and
 S. δ -Aquarids - also some sporadics.

MIR

- saw and photographed passage of Mir Space Station
 from WSA to ENE from 02:32 to 02:35 UT
 - about as bright as Vega.

C-14, 40, 8.8: M57, M13, Jupiter and 4 moons.

The bands were fairly good on Jupiter

20x100b: M11 and R Scuti, M16, M17, M18,
 M24 area, M22, M31, M2, C/1999 and
 area where Pallas had been 2 nights
 before, though I did not verify its
 position from the star map, though I was
 fairly sure of the area where it was.

F.-S. Aug. 1-2 02:00-04:10 UT 00 S-8 T9 but periodically cloudy ne; 20x100b
 ne: constellations

20x100b: M16, M17, M18, M24 and the nearby dark nebulae
 B92 and B93 (See U339), M5, M9, Jupiter and 3 of its
 moons (2 of the moons may have been so close that they
 appeared as one in the binoculars).

Sa. Aug. 2 19:40-19:45 UT t
 Sun O_g O_s RSN₀

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

Sa.-Su. Aug. 2-3 05:20-05:55 UT y

S-8(?) T9 ^{just a} few clouds ne

constellations, Jupiter, Saturn

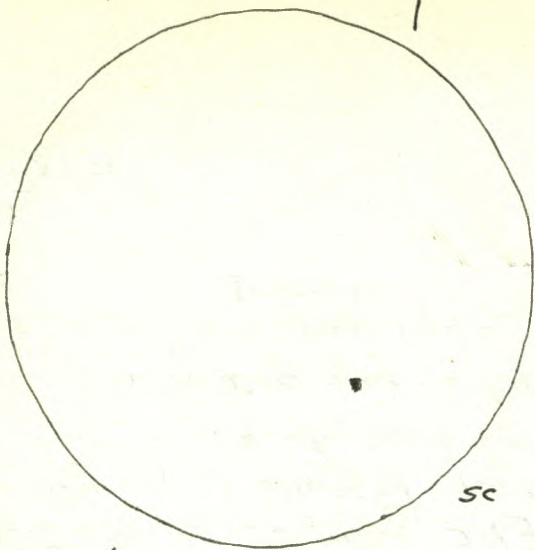
Su. Aug. 3 18:30-18:35 UT
 Sun 19/5 RSN₁₁

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

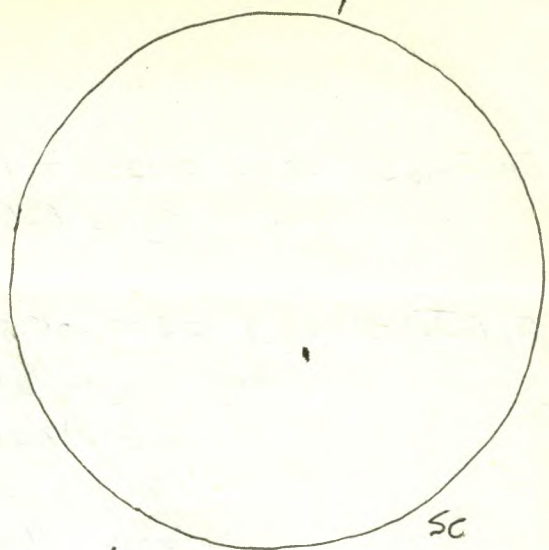
S.-M. Aug. 3-4 04:15-04:25 UT y S-8? T8 (hazy)

ne

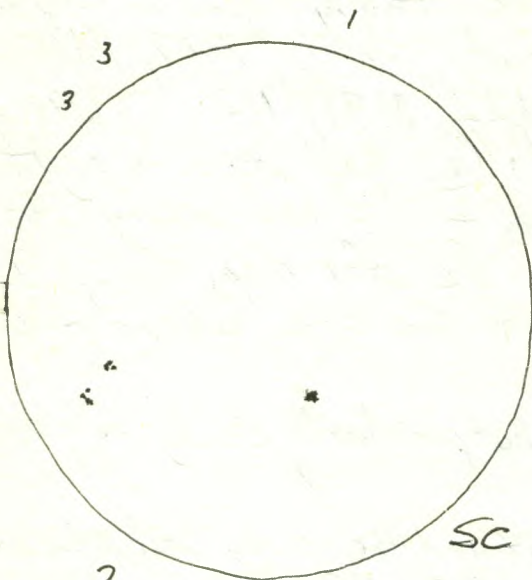
constellations



19 Aug. 4
15
RSNO 19:05-19:10UT



19 Aug. 5
15
RSN11 20:00-20:05UT



39 Aug. 6
75
RSN 37 21:20-21:25UT

1997.

M. Aug. 4 19:05-19:10 UT t
sun 9 5 RSN01

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

M.-T. Aug. 4-5 02:05-02:40 UT y T-7 (tw) and some clouds ne
constellations, Jupiter, 1 or 2 meteors (1 probably a Perseid).

T. Aug. 5 20:00-20:05 UT t
sun 1g 1s RSN11

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

T.-W. Aug. 5-6 02:30-05:20 UT 00 S-9? T 9.5-10! (Superb!) ne; C-14, 55, 88;
ne.: constellations, several good meteors, possibly S. δ-Aquarids
and Perseids, and some sporadics.

(Before sunset at 00:00 UT I saw for about 3^{sec}
a small flash in WNW about 25° above sun
(from inside), possibly a flash from a satellite.

While observing I also saw in Hercules a flash
in possibly nearby position, from tumbling satellite
which I followed for a distance as it moved N.)

C-14: M57, M27, Jupiter, Saturn

20x100b: M16, M17, M18, M24 and nearby B92 and B93,
M23, M25, M8, M20, M21, M22, M28, M2, M31
M32, M110, M33, NGC 7789, Uranus and Neptune,
M13, M11 and R Scuti area, area of Barnard's Star

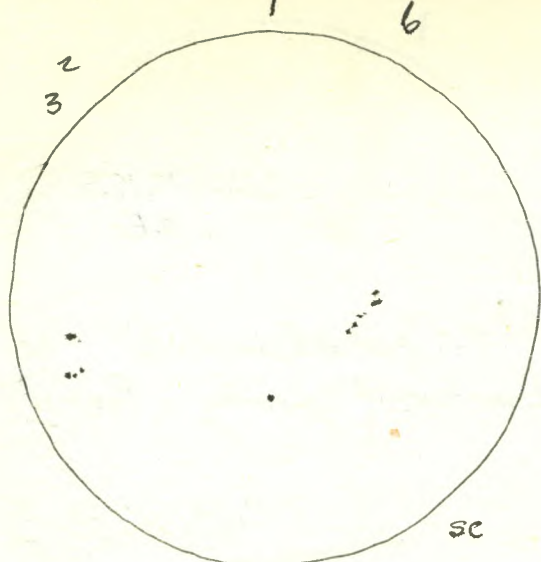
W. Aug. 6 21:20-21:25 UT t
sun 3g 7s RSN37

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

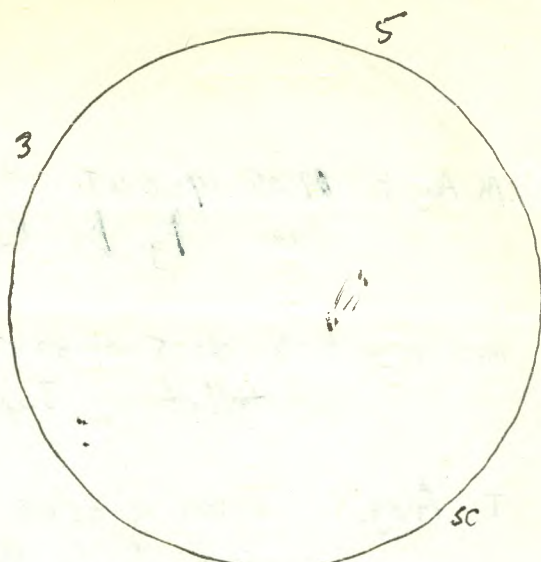
W.-Th. Aug. 6-7 02:30-06:00 UT 00 S-9(?) T 9.5-10! ne; C-14; 20x100b
ne: constellations, several meteors

C-14: M57, Jupiter and 4 moons, and bands quite good -
Jupiter also observed with 8.8mm Ultra Wide-Angle Eyepiece.

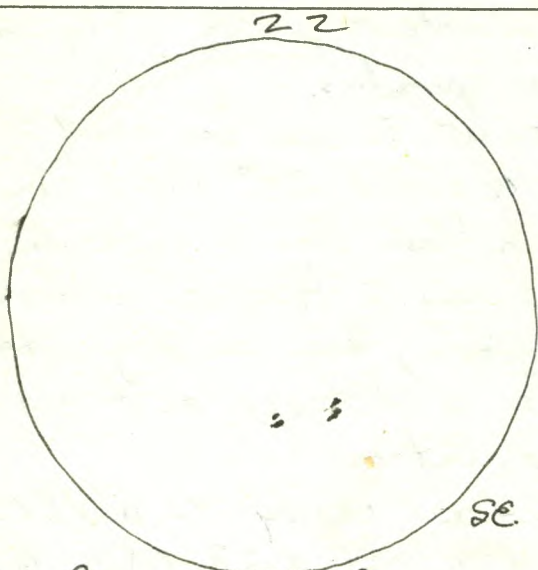
20x100b: M16, M17, M18, M24 and B92 and B93, M25, M26,
M11 and R Scuti, M8, M20, M21, M22, M69, M70, M2,
M13, M15, M92, M33, M31, M32, M110, M28, M107
and V Oph (see U 291), R Oph (see U 292).



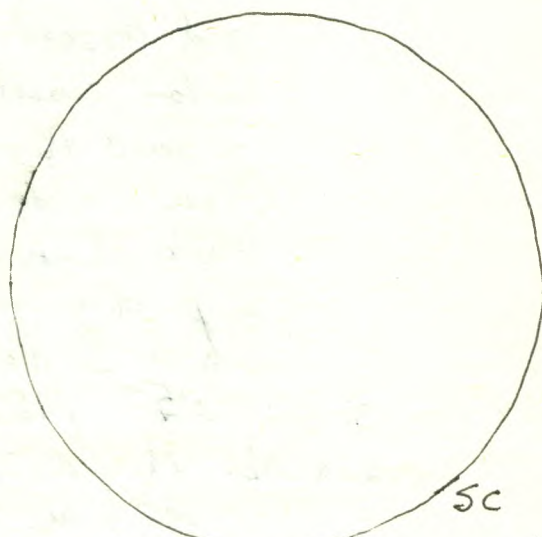
4g Aug. 7
125 20:25-20:35UT
RSN52



2g Aug. 8
85 20:35-20:40UT
RSN28



2g Aug. 9.
45 18:30-18:35UT
RSN24



0g Aug. 10
05 20:15-20:20UT
RSN0

1997

Th. Aug. 7 20:25-20:35 UT t

sun 4g 12s RSN 52

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

F. Aug. 8 20:35-20:40 UT t

sun 2g 8s RSN 28

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

F.-S. Aug. 8-9 02:00-05:10 UT 00 S-8-9(?) T-7-8.5 -early - quite hazy in lower sky - later - much better
ne; 9x63b; C-14
ne: constellations; several good meteors including Perseids
9x63b: early: (about 00:30-01:30 UT) crescent moon
later: Cygnus area, M11, M22, other Summer Milky Way areas

C-14: M57, M13, area of 6826 in Cygnus, R Cyg

(Denise, Kevin, Phyllis, Christine also observed)

20x100: M2, Jupiter, Saturn, M33, M31, M32, M110, NGC 7789,
Double Cluster in Perseus

The haze in the lower part of the sky for the first part of the session was disappointing, but it was considerably better after 04:00 UT.

Sa. Aug. 9 18:30-18:35 UT t

sun 2g 4s RSN 24

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

Su.-Su Aug. 9-10 02:00-04:30 UT 00 S-8? T 9-9.5 ne; C-14, 32-2

ne: constellations; a number of good Perseid meteors.

C-14; M11, M13, M57, M15, M2, area of NGC 6206,

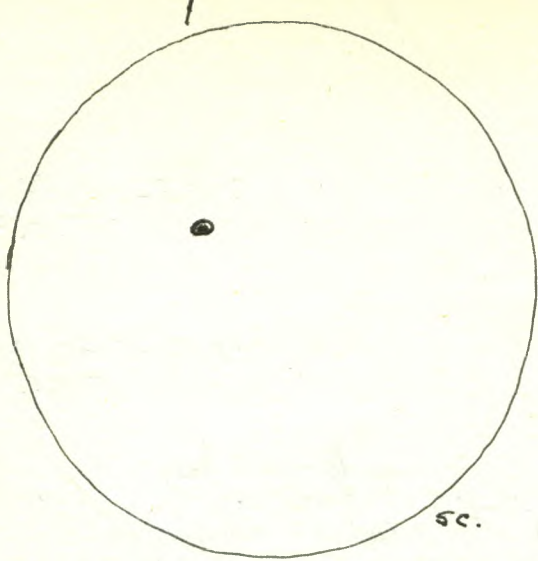
(Denise, Kevin, Phyllis, Christine also viewed some of the objects.) also NGC 6207, the galaxy near M13 in Hercules, M20, Jupiter and 3 of its moons (II and its shadow were in transit.)

(Mars had been seen early in the evening about 3° from the moon in the W. sky.)

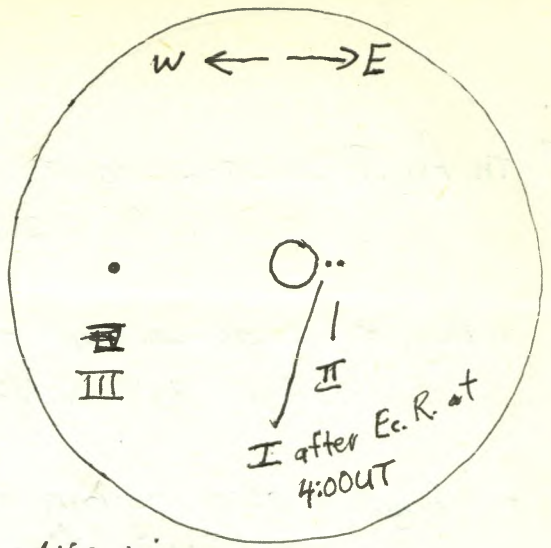
Su. Aug. 10 20:15-20:20 UT t

sun 0g 0s RSN 0

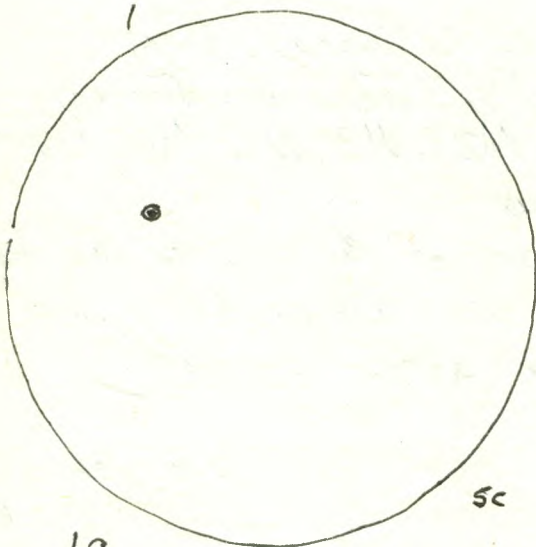
slight haze c-8, 32, 28, 20, 15.5
T.O.F.



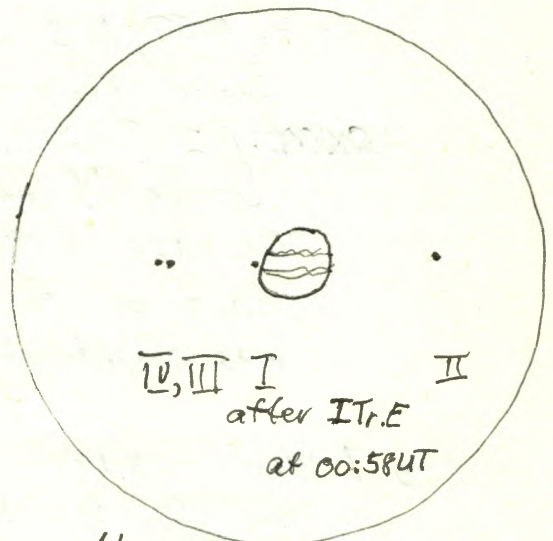
19 Aug. 18
15 20:15 - 20:20 UT
RSN11



View in
Astroscom of Jupiter
Aug. 18-19 05:00 UT



19 Aug. 19
15 21:25 - 21:30 UT
RSN11



View in
Astroscom of Jupiter
Aug. 19 20:01:30 UT

1997

S.-M.

later clouds eventually totally overcast

Aug. 10-11 - 01:10 - 04:00 UT y S-? T 0-8 tw and crnl at first; ne
 ne: constellations; facing ESE hoping to see some
 perseid meteors, but did not see any, because of
 limited view perhaps, because of clouds, and being
 close to the observatory, did not see a large area
 of the sky in the N.

M.-T. Aug. 11-12 02:30 - 03:20 UT y clear, but gml ne
 - looked for Perseids, but saw only 5 or 6 or so.
 - some Auroral glow (probably) in the N.

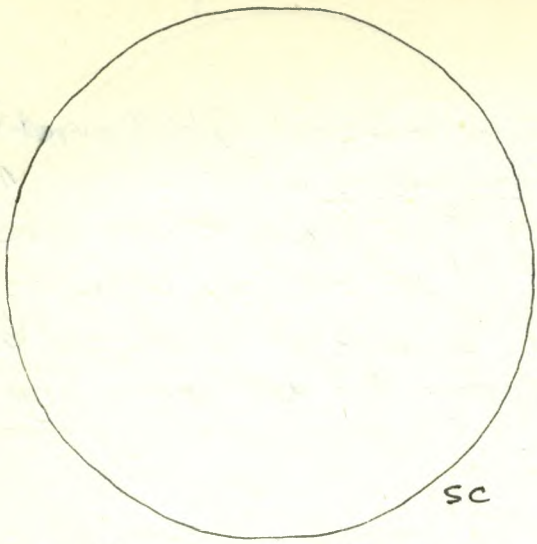
Sa.-Su. Aug. 16-17 01:45 - 02:15 UT y S-? T 6 - clouds, gml ne
 - a few stars - looked for Perseids and saw only one or two
 because of the fairly heavy clouds and gibbous moonlight.

M. Aug. 18 20:15 - 20:20 UT ss C-8, 32, 28, 20, 15.5
 Sun lg ls RSN II T.O.F.

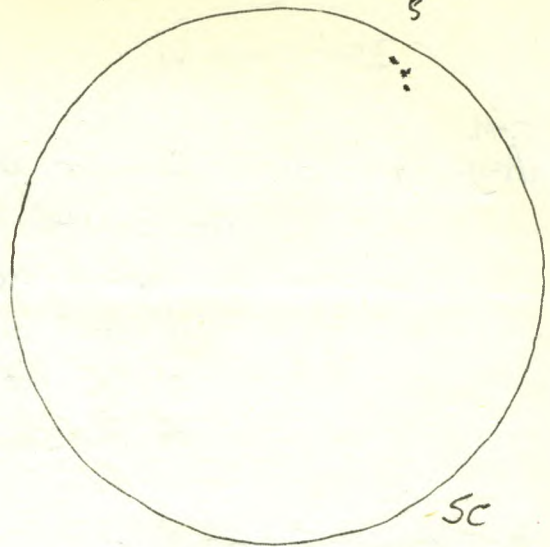
M.-T. Aug. 18-19 02:20 - 05:15 UT y and t gml ne; Ast, 28, 21, 19, 15, 8, & Barlow
 ne: several Meteors, perhaps 2 or 3 Perseids which were
 fairly faint, and one perhaps a S. Aquarid which
 was quite bright, perhaps mag. 0.
 Ast.: Jupiter (see diagram. I may also have seen
 IV close to Jupiter on E. side before its
 transit. Its transit began at 4:37 UT.)
 M13, β Cyg.

Tu. Aug. 19 21:25 - 21:30 UT C-8, 32, 28, 20, 15.5
 Sun lg ls RSN II T.O.F.

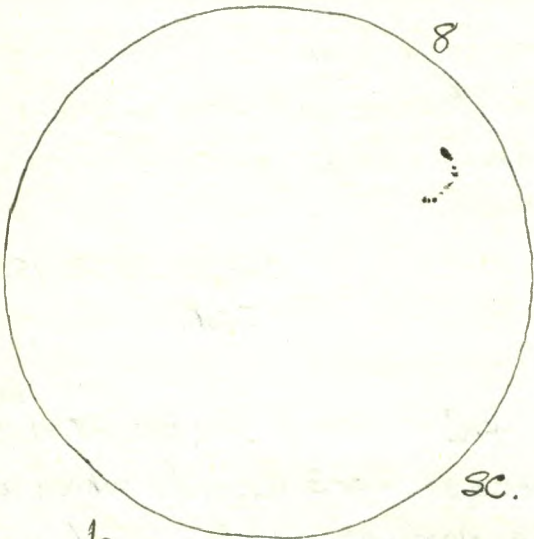
T.-w. Aug. 19-20 00:15 - 03:15 UT on Bob's Lake Long Bay Camp gml Ast, 12 + Ba, 15 + Ba
 - at Muslim Camp with David Stokes, showing celestial
 objects to the children (and some adults) at the
 camp: Jupiter and 4 moons, β Cyg, Mizar and Alcor,
 Saturn and Titan.



09
05
RSNO Aug. 24
19:05-19:10UT



19
55
RSN15 Aug. 25
20:50-20:55UT



19
8s
RSN18 Aug. 26
20:00-20:05UT

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

1997 Sa.-Su. Aug. 23-24 02:20-03:25 UT y cloudy at first; S-T 8.5-9 9x63b; 20x100b
9x63b: areas of Cas, other areas, M31
20x100b: M11 and R Scuti, M16, M26, M17, M18, M24, M22, M15,
Barnard's Star, T Cor Bor, M2, Jupiter, areas of
Cygnus.

Su. Aug. 24 19:05-19:10 UT t
Sun Og Os RSN O C-8, 32, 28, 20, 15.5
T. O. F

S.-M. Aug. 24-25 02:45-03:55 UT y S-? T 5 cloudy ne; 9x63b
ne: constellations, Jupiter
9x63b: M11 and R Scuti, M22, M16, M17, M18, M24, Jupiter,
area of Barnard's Star, Double Cluster in Per.

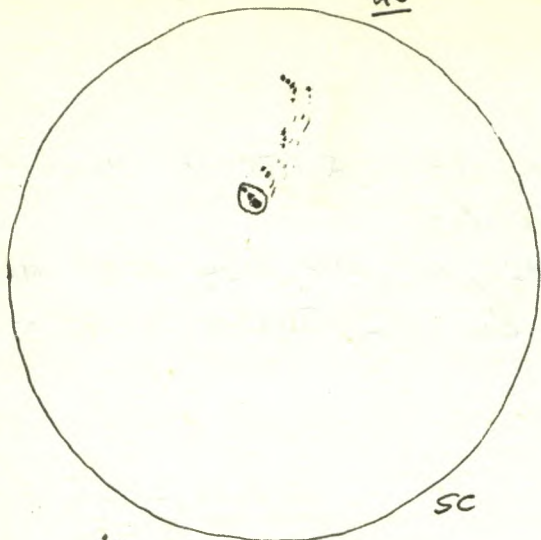
M. Aug. 25 20:50-20:55 UT t
Sun lg Ss RSN 15 C-8, 32, 28, ^{20,} 15.5.

M.-T. Aug. 25-26 01:30-05:10 UT 00 S-? T 9-9.5 20x100b; C-14, 40, 13.
20x100b: M11 and R Scuti, M16, M17, M18, M23, M24, M25, M26,
M22, Barnard's Star, Double Cluster in Perseus,
Keble's Cascade.

6229 C-14: M57, NGC 6229 (GC in Her, N from η Her, mag. 9.43,
See U80 - quite bright - near two stars
and forming an interesting triangle in the
6426 40mm eyepiece - at ~~100~~ 97.8X); NGC 6426
(GC in Oph - fainter and more diffuse than
expected - See U248. - W. from γ Oph to
61 Oph, then N to the globular cluster which is
7006 - very remote
globular cluster
See Barakham
p. 831, 832.
?-185,000 l.y. mag. 11.2); NGC 7006 (GC. in Del - See U209 and
210 - E from the star γ Del - fairly compact, ~~mag~~
mag. 10.6.); Jupiter and 2 moons - 2 others probably
being occulted; Saturn and 4 moons.

T.-W. Aug. 26-27 02:20-04:30 UT y S-? T 5-6 cloudy, hazy ne; 9x63b
ne: constellations, a couple of meteors, one possibly a
Perseid.

25

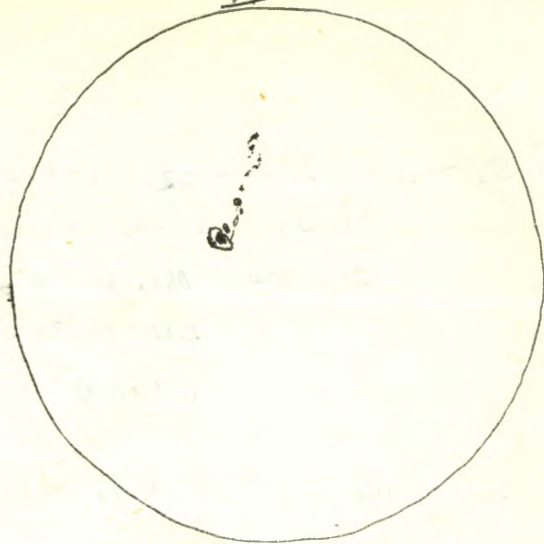


SC

19
255
RSN35

Aug. 29
21:40-21:45 UT

14



19
145
RSN24

Aug. 30
21:10-21:15 UT

1997

9x63b: areas of Cygnus, Cassiopeia.

W.-Th. Aug. 27-28 03:15-04:15 UT y S-? T6-7 (haze, cloud, ^{"heat"} lightning) ne; 9x63b
 ne: several (probably 4 or 5) meteors, one of which was probably a Perseid, constellations.

9x63b: Cygnus areas, Cassiopeia areas, Perseus, Double Cluster in Perseus, M33, M31, M11 and RScuti, M13, Jupiter, M15, U and EU in Del, δ Cep and μ Cep.

Th.-F. Aug. 28-29 02:15-07:15 UT 00 S-8? T9-9.5! C-14, 32 Ko; 20x100b.
 C-14: M5!, M15, area of IC289 PN in Cas looking for it but not sure of seeing it, area of NGC246 PN in Cet but not sure of seeing it, though I saw it later in binoculars

20x100b: Barnard's Star, M11 and RScuti, M16, M17, M18, M24, M26, M23, M25, M22, NGC7789, Double Cluster in Perseus, NGC246 PN in Cet (faint but quite large - WSW from β Cet - see U262), Jupiter.
 NGC253 - bright Sculptor galaxy, NGC288 GC in Sculptor

NGC246

NGC253 GC SW
NGC288 GC SW

F. Aug. 29 21:40-21:45 UT t
 sun lg 25s RSN35

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

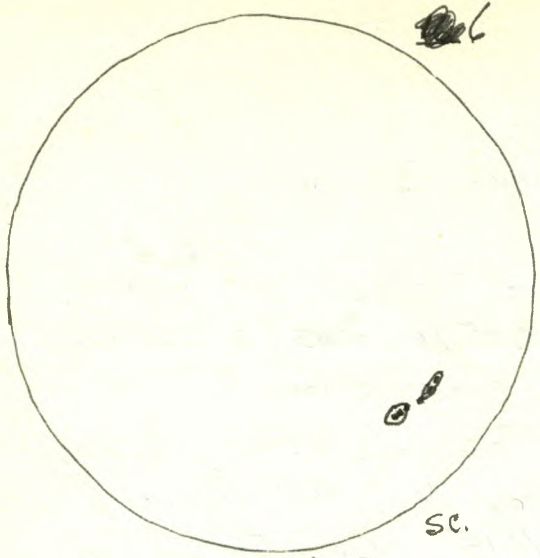
F.-S. Aug. 29-30 01:00-01:20 UT 00 twl C-14, 32 Ko

- Jupiter and 3 moons - all on one side - observed with Peter, Linda, David, Janice, Joathon - they were on their way to Oakville to take David to Sheridan College for his first term there, and they planned to stay overnight at Tim's place. Bands were visible on Jupiter.

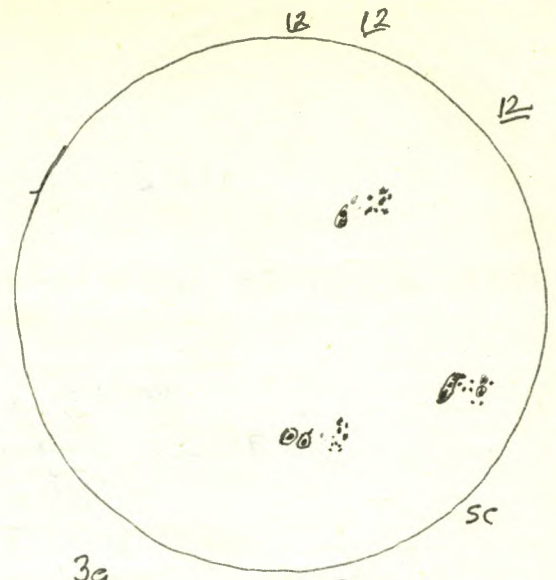
03:00-05:15 UT 00 S-? T6-8 - clouds 20x100b.
 - Pleiades, M11 and RScuti, M31, M33, Double Cluster in Perseus, areas of Perseus and Cassiopeia, NGC7789.

Sa. Aug. 30 21:10-21:15 UT t
 sun lg 14s RSN24

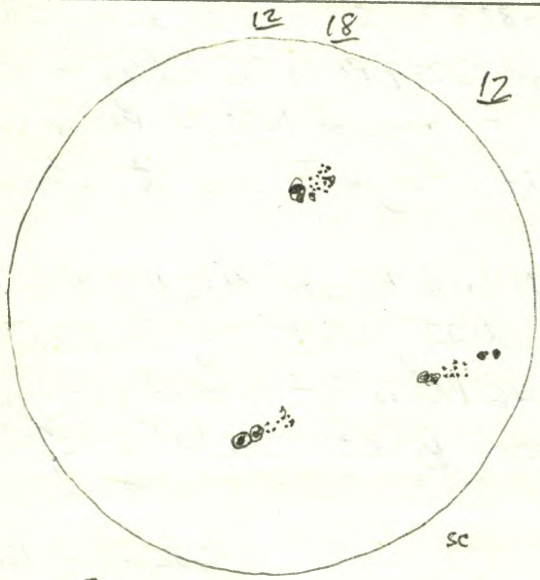
C-8, 32, 28, 20, 15.5
T.O.F.



1g
6s
RSN16
Sept. 5
20:35-20:40UT



3g
36s
RSN66
Sept. 8
21:45-21:50UT



3g
42s
RSN70
Sept 9
21:00-21:05UT

[Faint, illegible handwritten notes in the right column of the middle section.]

[Faint, illegible handwritten notes in the bottom left quadrant.]

[Faint, illegible handwritten notes in the bottom right quadrant.]

1997

Sa.-Su. Aug. 30-31 02:00-04:15 UT y s-? T 7-9 (some cloud, early in session especially) ne
 Reclining on the lawn chaise, I observed constellations and stars in various areas of the sky under conditions that varied from one part of the sky to another and from time to time.

M.-T. Sept. 1-2 02:20-03:45 UT y 5-8(?) T 8-9 ne; 9x636
 ne: constellations; 2 meteors, one probably a Perseid.
 9x636: M11 and R Scuti area, Jupiter, M31, areas of Cygnus, areas of Cassiopeia, Double Cluster in Perseus.

W.-Th. Sept 3-4 05:25 UT and about 8:30 UT in T 9-9.5! ne
 Aurora - fairly strong glow in N - up about 20°-25° or more, with little activity noticed, other than the notable white glow

F. Sept. 5 20:35-20:40 UT t C-8, 32, 28, 20, 15.5
 sun lg 65 RSN 16 T.O.F.

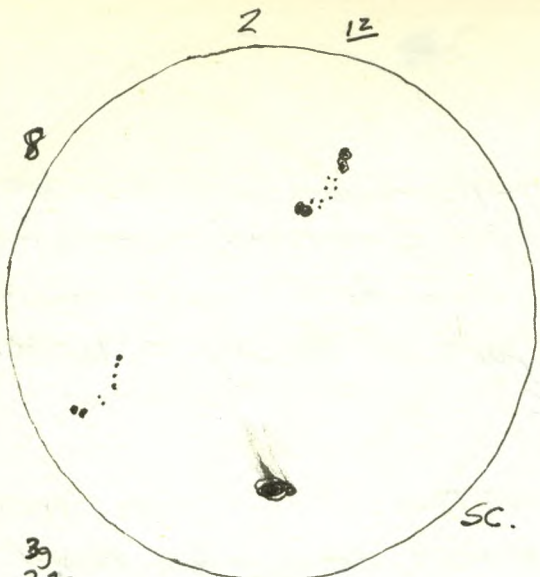
S.-M. Sept. 7-8 00:50-01:05 UT y 5? T 0-8 (partly cloudy, twl) cml ne
 - constellations, Milky Way

M. Sept. 8 21:45-21:50 UT t C-8, 32, 28, 20, 15.5
 sun 39 365 RSN 66

M.-T. Sept. 8-9 00:05-00:15 UT on dock twl, cml ne
 - crescent moon in SW, Mars in WSW, Jupiter brilliant in SE, the Summer Triangle.

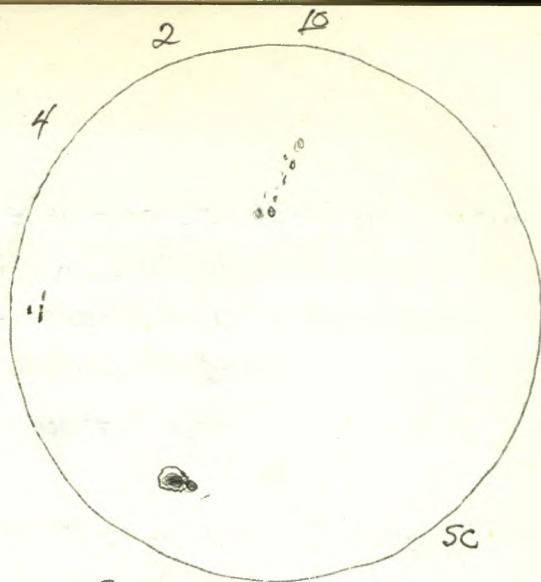
T. Sept. 9 21:00-21:05 UT t C-8, 32, 28, 20, 15.5
 sun 39 425 RSN 72 T.O.F.

Sa.-Su. Sept. 13-14 03:45-04:15 UT nd gml. ne - with John Hurley
 constellations, slight glow in N. that may have been Aurora, Jupiter s. of and about 4° from the gibbous moon.



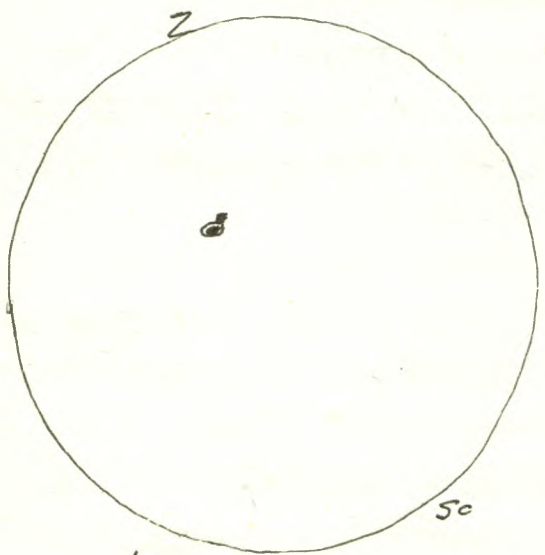
39
225
RSN52

Sept. 15
20:30-20:35 UT



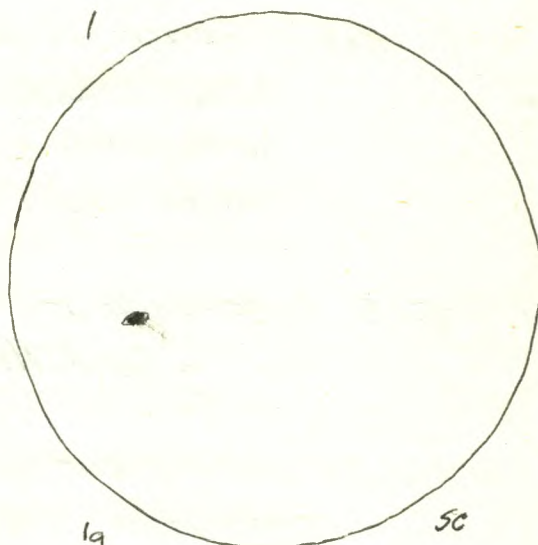
39
165
RSN46

Sept. 16
20:20-20:25 UT



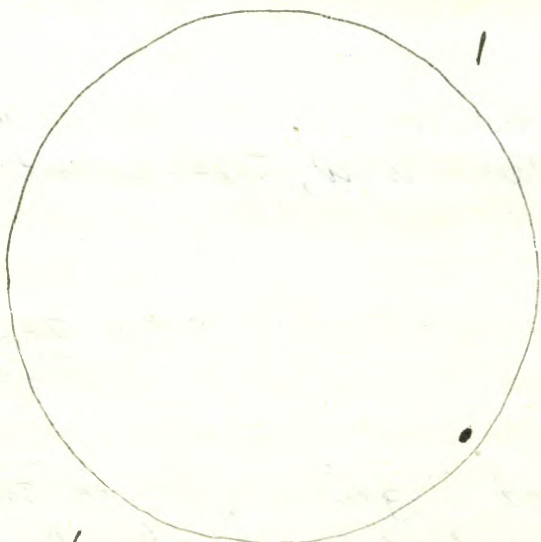
19
25
RSN12

Sept. 18
20:40-20:45 UT



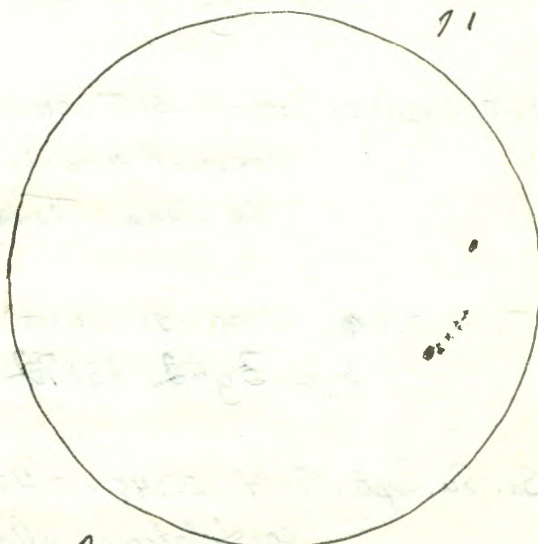
19
15
RSN11

Sept. 20
21:55-22:00 UT



19
15
RSN11

Sept. 21
20:10-20:15 UT



29
85
RSN08

Sept. 22
19:50-19:55 UT

1997 M. Sept. 15 20:30-20:35 UT t
Sun 3g 28s RSN52

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

T. Sept. 16 20:20-20:25 UT t
Sun 3g 16s RSN46

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

T.-W. Sept. 16-17 23:35 - 00:30 UT ^{Dark} y₁ twl; fwl. ne with Denise & Antony Powell.
- Full Moon rising, Jupiter, several constellations;
- later about 04:00-04:15 UT - constellations and Saturn

Th. Sept. 18 20:40-20:45 UT t
Sun 1g 2s RSN12

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

Sa Sept. 20 21:55-22:00 UT t+nd
Sun 1g 1s RSN11 sun low; trees interfered

C-8, 32
T.O.F.

Su. Sept. 21 20:10-20:15 UT t
Sun 1g 1s RSN11

C-8, 32, 28, 20, 15.5
A.P.F.

Su.-M. Sept. 21-22 ~~23:35~~ 00:30-02:20 UT ⁰⁰ s-8? T 9.5 C-14, 32; 20x100b
C-14: Jupiter and 4 moons and III shadow in transit
near middle of disk; M11, M13, NGC 6207,
Saturn and 2 or 3 moons.

20x100b: M22, M2, M20, M21, M8, 16, M17, M18, M27,
M13, M2, M31, M32, M110, M33, Barnard's Star,
Uranus (R.A.: 20^h30^m; Dec. -19°39' (See 4.343)
Neptune (R.A.: 19^h57^m; Dec. -20°19' (See 4.343).
T Cor Bor, R Cor Bor, Double Cluster in Per. (!)

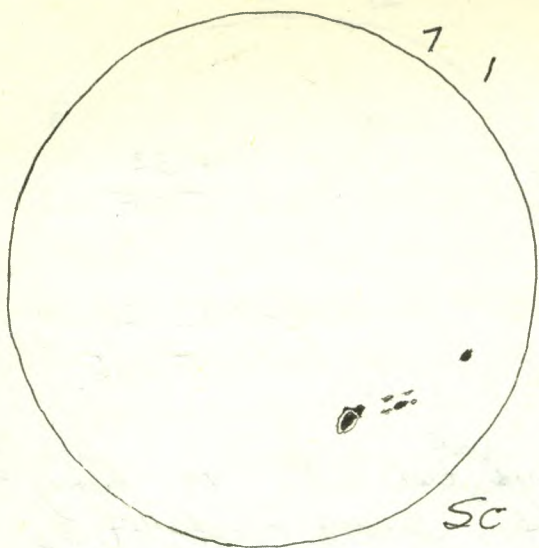
Uranus,
Neptune

Aurora.

Glow in N. seen at end of session - probably the
Aurora Borealis
- Some comet-hunting near M11 and M13.

M Sept. 22 19:50-19:55 UT t
Sun 2g 8s RSN28

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



29
85
RSN28

Sept. 23
20:05-20:10UT

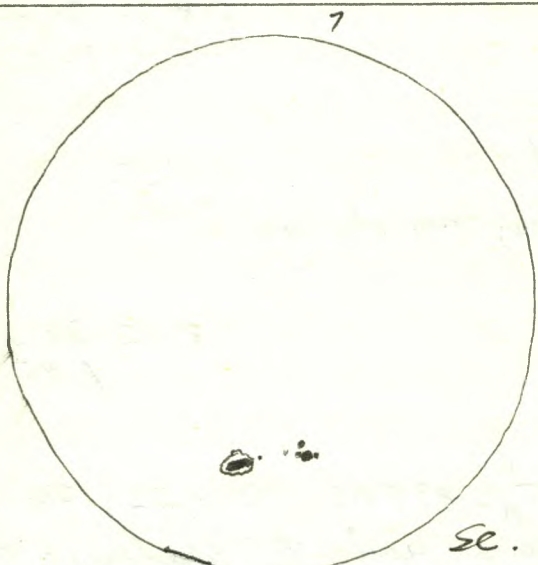
SC



29
115
RSN31

Sept 24
20:35-20:40 UT

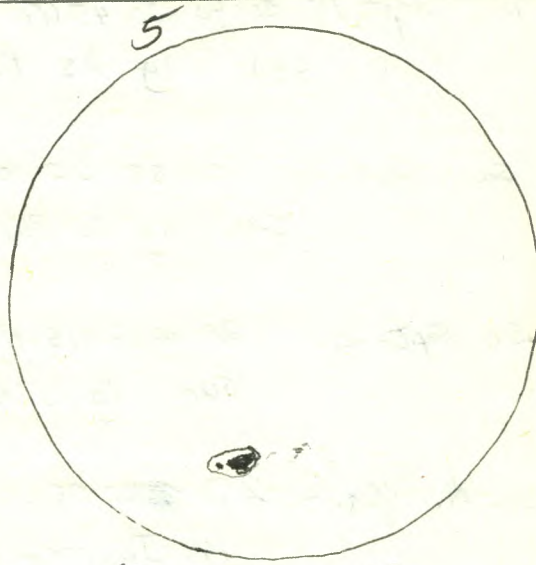
SC.



19
75
RSN17

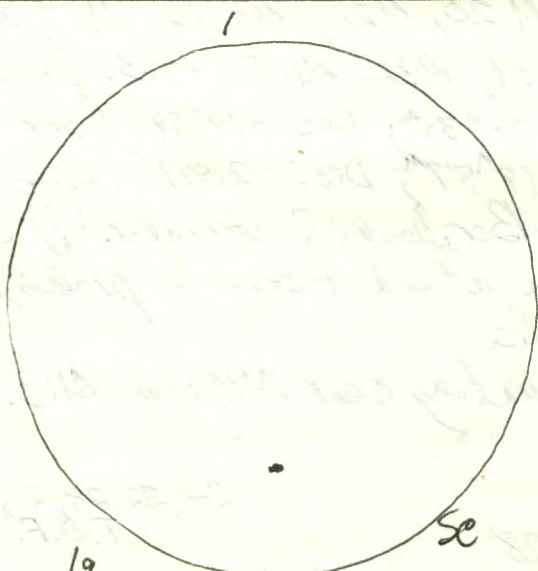
Sept 26
20:20-20:25 UT

SC.



19
55
RSN15

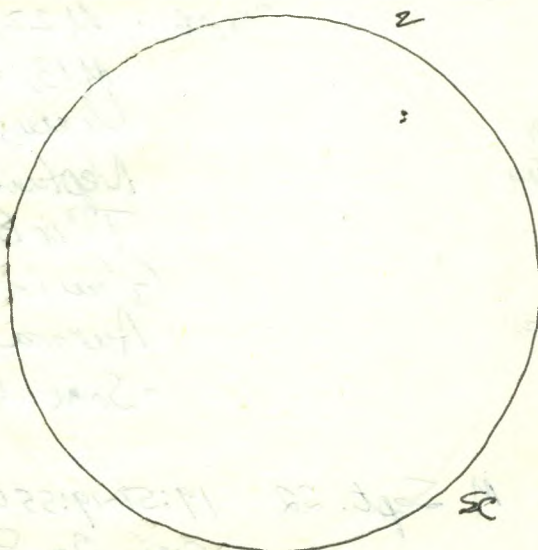
Sept. 27
19:15-19:20 UT



19
15
RSN11

Oct. 5
19:05-19:10 UT

SC



19
25
RSN12

Oct. 7
20:40-20:45 UT

SC

1997

Tu. Sept. 23 20:05 - 20:10 UT t
 sun 2g 8s RSN 28 C-8, 32, 28, 20, 15.5
 T.O.F.

W. Sept. 24 20:35 - 20:40 UT t
 sun 2g 11s RSN 31 C-8, 32, 28, 20, 15.5
 T.O.F.

F. Sept. 26 20:20 - 20:24 UT
 sun 1g 7s RSN 17 C-8, 32, 28, 20, 15.5
 T.O.F.

Sa. Sept. 27 19:15 - 19:20 UT
 sun 1g 5s RSN 15 C-8, 32, 28, 20, 15.5
 T.O.F.

Sa. Su. Sept. 27-28 02:50 - 03:20 UT y S-8? T9 ne
 constellations; some Auroral glow in N. - up about 15°
 Some clouds appeared in W. and S.

Su. Oct. 5 19:05 - 19:10 UT t
 sun 1g 1s RSN 11 C-8, 32, 28, 20, 15.5
 T.O.F.

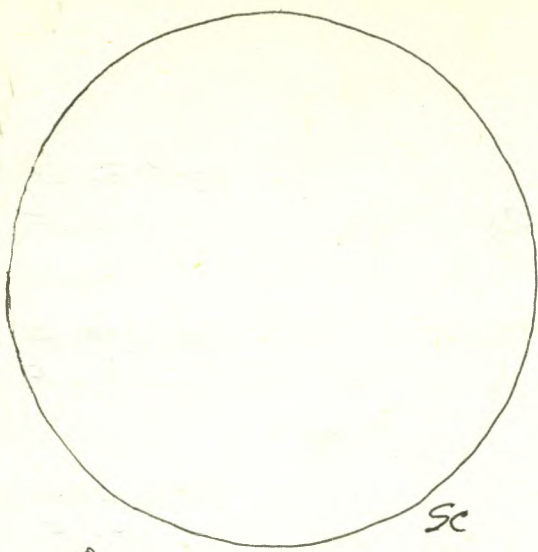
20:34 UT on lake, in canoe sun up 25° ne
 crescent moon in S. - moon 4^d 3^h 43^m old since N.M. was
 on Oct. 1 at 16:51 UT

S.-M. Oct. 5-6 23:00 UT on dock twl ne
 cr. Moon and Venus in SW with Venus about 10° above
 horizon and moon about 8° above Venus.

M.-T. Oct. 6-7 ~~20:15 - 20:45 UT~~ 00:15 - 01:30 UT y crml ne
~~sun 1g 1s RSN 12~~ constellations - with crescent moon in W.
 Jupiter in S. and Saturn in SE.

Tu. Oct. 7 20:40 - 20:45 UT t
 sun 1g 2s RSN 12 C-8, 32, 28, 20, 15.5
 T.O.F.

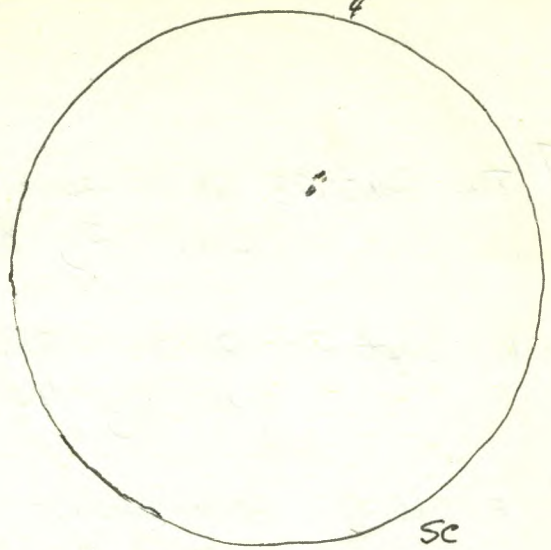
F. Oct. 10 20:35 - 20:40 UT t
 sun 0g 0s RSN 0 C-8, 32, 28, 20, 15.5
 T.O.F.



0g
0s
RSN0

Oct. 10
20:35-20:40UT

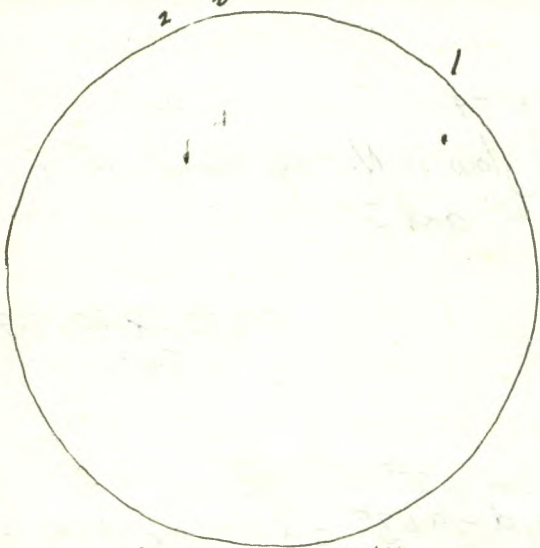
Sc



1g
4s
RSN14

Oct. 11
20:40-20:45UT

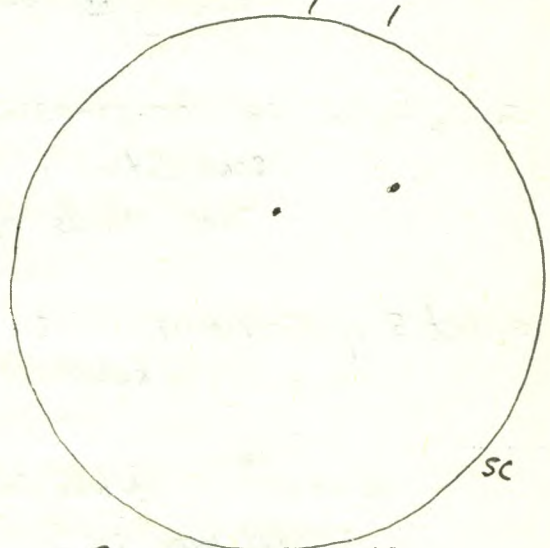
Sc



3g
5s
RSN35

Oct. 14
20:55-21:00UT

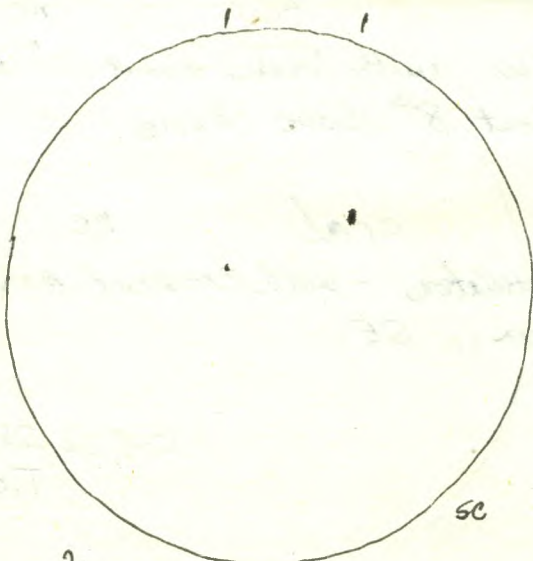
1



2g
2s
RSN22

Oct. 19
18:55-19:00UT

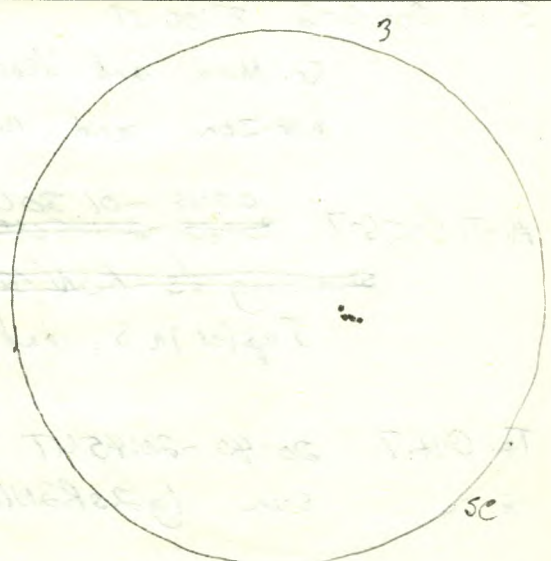
Sc



2g
2s
RSN24

Oct. 20
20:00-20:05UT

Sc



1g
3s
RSN13

Oct. 28
20:25-20:30UT

Sc

1997

F.-S. Oct. 10-11 02:30-04:00 UT ad

gmb

NE with Denise

- gibbous moon near Jupiter (moon about 8° - 10° from light of Jupiter).

Aurora!

Aurora - very active, filling $\frac{2}{3}$ of the sky - bright glow in N. up 10° to 30° at times with spikes of varying intensity and "flaming", into the E. as far as the Pleiades and into W. and NW. including Hercules, quite active by times in the zenith, not a tremendous amount of colour, perhaps due to the bright moonlight, but some red and perhaps slightly greenish colour was evident.

Su. Oct. 11 20:40-20:45 UT t

sun 1g 4s RSN14

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

Su.-M. Oct. 12-13 22:45-23:45 UT at Peter's place, Blackburn Hamlet
gmb, twl Ast, 15.5, 8, 17 Bar.
Venus - seen at about quarter phase; Jupiter with 3 moons - one very close to the planet; Saturn; lunar craters Peter, Linda, David, Janice, David, and Denise observed. The views of Jupiter were excellent, though it was about 20° from the bright gibbous moon.

Tu. Oct. 14 20:55-21:00 UT t

sun 3g 5s RSN35

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

Su. Oct. 19 18:55-19:00 UT t

sun 2g 2s RSN22

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

M. Oct. 20 20:00-20:05 UT t

sun 2g 2s RSN22

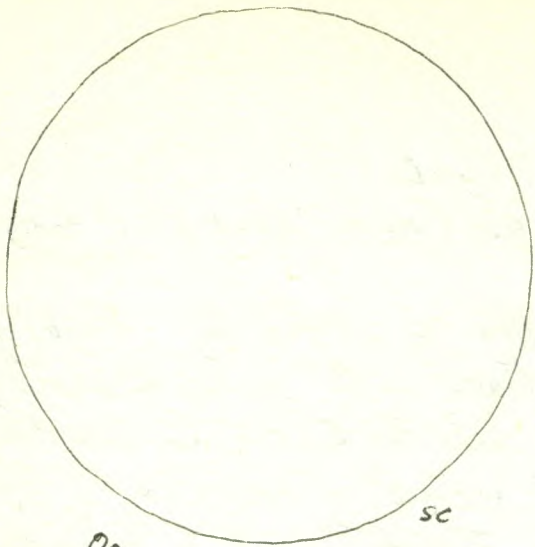
C-8, 32, 28, 20, 15.5
T.O.F.

T. Oct. 28 20:25-20:30 UT ss

sun 1g 3s RSN13

C-8, 32, 28, 20, 15.5

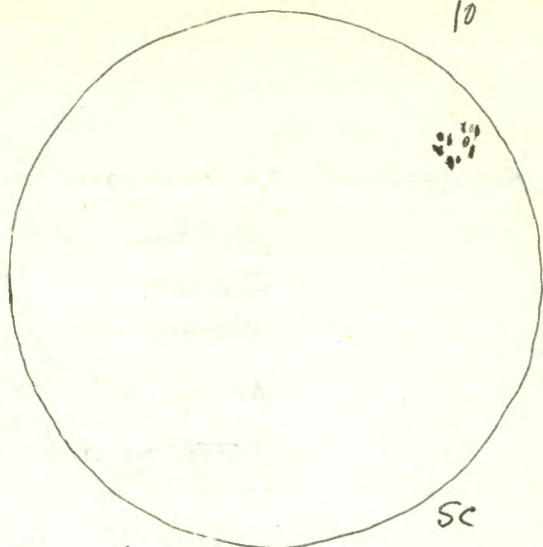
quite poor seeing - considerable "boiling"
T.O.F.



0g
05
RSN0

Nov. 16
20:20-20:25 UT

sc

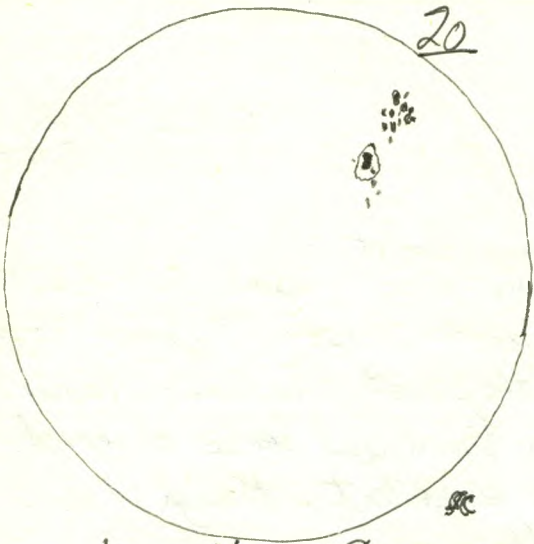


10

1g
105
RSN20

Nov. 27
20:15-20:20 UT

sc



20

1g
205
RSN30

Nov. 29
19:55-20:00 UT

sc

1997 Th.-F. Nov. 6-7 03:50-04:00 UT nd

S-8 T 7-8 (somebody) ne

Aurora!

- intense Aurora with bright glow in N and strong arc up about 40°, with flaming throughout the Northern sky except near the arc. The flaming, in fact, extended beyond the zenith into the southern sky. Some clouds in the N. prevented it from being as impressive as it might have been.

Su. Nov. 16 20:20-20:25 UT t

C-8, 32

sun 09 05 RSN 0 - sun was low. Trees interfered

M.-T. Nov. 24-25 00:00-02:40 UT 00

S-8 T 8-5-9

C-14, 32, 19, 12, 9(2"), 55(2)

- observed with Paul Bowman, a grade 9 student from the school.
- M57, Veil Nebula, Jupiter and 4 moons, Saturn and 4 moons, M35, M37, M38, NGC 253 in Sculptor, M31, M110, Double Cluster in Perseus, Trapezium in Orion Nebula.

Th. Nov. 27 20:15-20:20 UT sd

C-8, 32

sun 19 105 RSN 20 - sun low; viewed from south deck.

Sa. Nov. 29 19:55-20:00 UT patio at S. side of house

C-8, 32

sun 19 205 RSN 30

Sa-Su Nov. 29-30 21:50-02:00 UT 00

S-8-9(?) T 9

C-14, 8, 32, 55; 20x100b

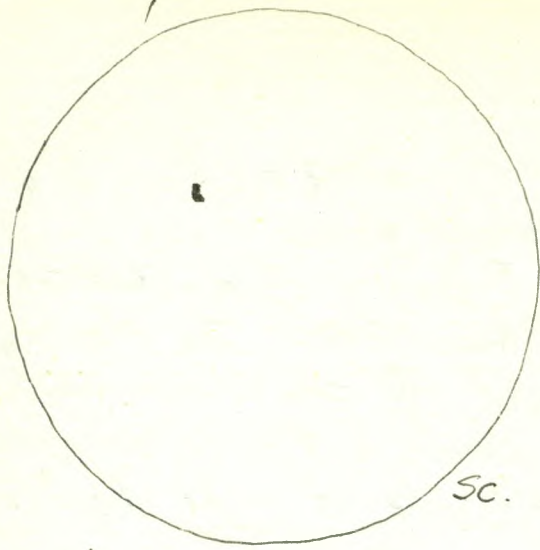
C-14: Venus, a crescent in SW about a half-hour after sunset; also in twilight - Jupiter and 3 moons and Saturn

- tried to find NGC 246 PN in Cet after finding it with 20x100b; M31

NGC 246
(15)

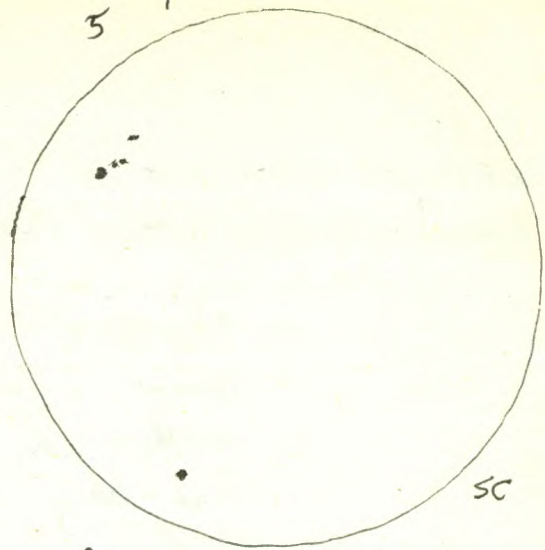
20x100b: NGC 246 (Finest N.G.C. Object # 15) - fairly large and not difficult to find by star-hopping from γ Cet (U 262). the area of NGC 1232 (Finest NGC # 21) by star-hopping from 15 and 16 Eri (U 311) but not sure of seeing it; NGC 1535 (Finest NGC # 22) by star-hopping from γ Eri (U 268); looked in the area of

NGC 1535
(22)



1g
1s
RSN11

Dec. 8
20:35-20:40UT



2g
6s
RSN26

Dec. 14
19:30-19:35UT

IC289 (Finest NGC #10) but not sure of seeing it; Keble's Cascade, M35 and nearby cluster, M42, M43, NGC 2244, R Lep (at about mag. 9.)

Algol at minimum. Several meteors were seen.

M. Dec. 8 20:35-20:40 UT sd C-8, 32
sun lg ls RSN11 - poor "seeing", sun low, some "tree" interference

M. Dec. 8 20:45 UT
Venus. - saw Venus naked-eye after finding it with 7x35 binoculars. It was approximately 40 minutes before sunset. Venus was supposed to reach greatest brilliancy on Nov. 11, 3 days later.

Fr.-Su. Dec. 13-14 04:40-05:00 UT nd and y full and some cloud ne
- tried to observe some Geminids on the night of the maximum, and saw 2 bright ones in W., about mag. 1. Earlier in the evening at the Christmas party for the staff, we went for a "hayride" on a wagon from Mike and Liz Steel-Drew's place near Mountain Grove. It was also partly cloudy and under a full moon we saw some winter stars, and I thought I saw one Geminid in the E., but was not positive about it.

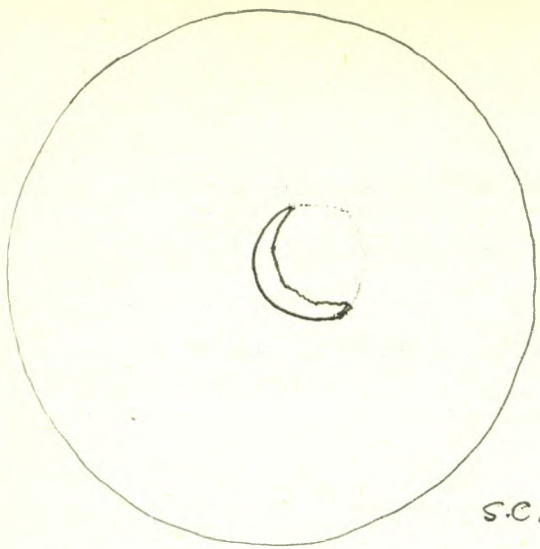
2 Geminids
under F.M.

Su. Dec. 14 19:30-19:35 UT t C-8, 32, 28
sun 2g 6s RSN 26.

(4:14 p.m. E.S.T.)

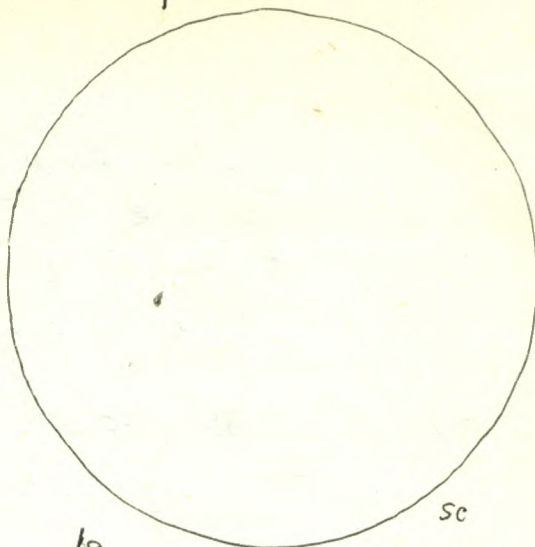
S.-M. Dec. 14-15 21:14 UT at Read sun well up, 15 min before SS. ne.
Venus. - saw Venus in SSW clearly "in a treetop" from the deck at Tim's place in Read - found it without binoculars about 15 min. before sunset with the sun clearly visible but fairly low "among the trees"

M. Dec. 14 21:08 UT sd ne
Under clear skies I saw Venus ne, after finding it ne. It was 16 minutes before sunset, with the



s.c.

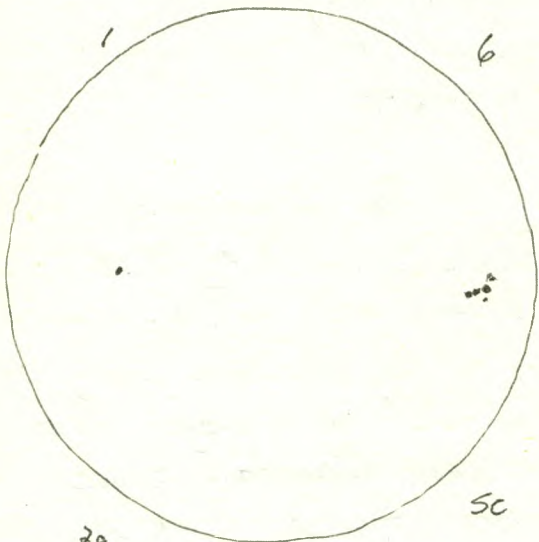
Crescent Venus
Dec. 16-17 22:15 UT



19
15
RSN11

Dec. 20
20:15 UT

sc



29
75
RSN27

Dec. 21
18:30-18:35 UT

sc

1997.

clearly shining.

T.-W. Dec. 16-17 22:10-22:30 UT t twl C-8, 19

- observed 4 planets spread out along the ecliptic from SW to SSE: Mars, Venus, Jupiter with 3 moons, Saturn and Titan. See drawing of Crescent Venus.

Sa. Dec. 20 20:15 UT sd C-8, 32

sun 1g 1s RSN11 - intermittent cloud while viewing.

5:05 - 5:10 PM. E.S.T.

Sa-Su. Dec. 20-21 22:05-22:10 UT nd. twl. ne; 10x25b

ne: "line of planets in twilight - Venus, Saturn, Jupiter."

10x25b: Mars seen only about 2° from Venus.

02:15-04:00 UT y 5-8(?) T9.5 20x100b

Rlep

M42, Rlep - very red and about mag. 8, area of NGC 1232 (Finest NGC # 21) (U311) but seen fairly well only with averted vision and not seen well otherwise, and nearby galaxy NGC 1300 seen a bit more easily, both found by "star-hopping" from τ^4 and 15 Eri on U311, NGC 2655 (Finest NGC #) in Cam (UT) easily seen even though listed as mag. 10.1, also nearby variable RSCam at about mag. 8. at about R.A. $8^h 50^m$ Dec. 77 (UT), M81, M82. (NGC 2655 was found by "star-hopping" from the unawed 3rd mag. star in Draco on 48 at about R.A. $9^h 36^m$ Dec. 81.3

NGC 2655

Su. Dec. 21 18:30-18:35 UT t C-8, 32, 28, 20, 15.5

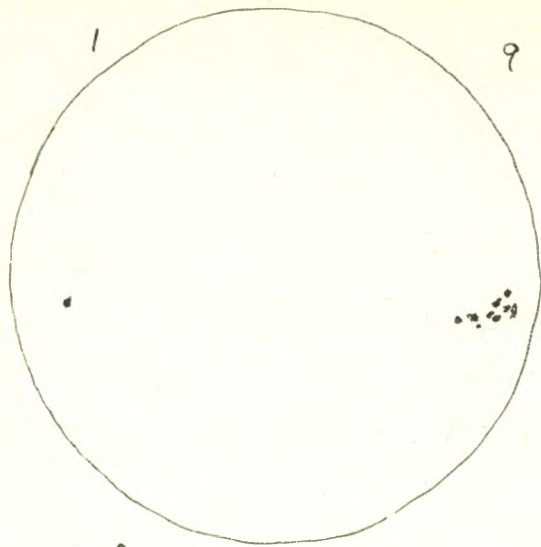
sun 2g 7s RSN27 T.O.F.

S.-M. Dec. 21-22 23:00-23:30 UT 00 5-8 T9-10 partly in twl. C-14, 19

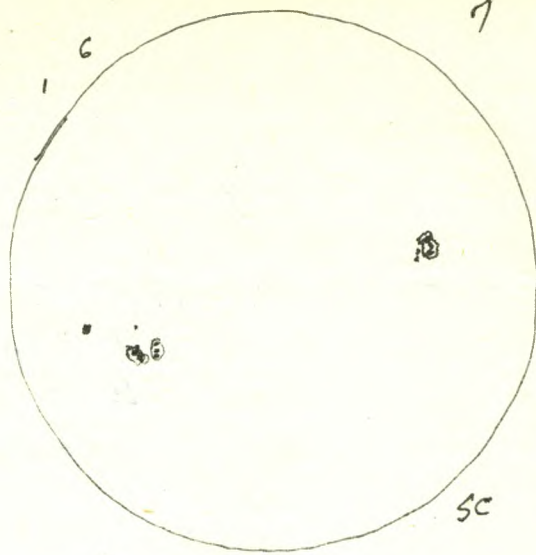
Venus - slender crescent - beautiful! Jupiter and 4 moons, Saturn.

Naked-eye Mars was also seen about 1° from Venus.

They were in conjunction 12 hours later (12^h UT)



29
105
RSN 30 Dec. 22
19:20-19:25 UT



33
145
RSN 44 Dec. 28
18:55-19:00 UT

• - Jupiter



• - Venus

SW

Dec. 31. - Jan. 1.
Venus, ~~Jupiter~~ Crescent Moon, and Jupiter
in SW during twilight about 22:55 UT

1997

1.1 apart.

(Earlier at 20:04 UT (4:04 pm. E.S.T. I had seen Venus ne. while in Read and had shown it to Tim. I had seen it about 22 minutes before sunset.)

01:30 - 04:00 UT 00 58(R) T 9.5-10! 20x100b; C-14, 32

20x100b: area of NGC 1232 and NGC 1300 in Eri., as I had searched in these areas the previous night; Saturn, Vesta (see Dec. 1997, S.T. page 104), M42! - probably as good as I had ever seen it. S Mon and "Christmas Tree" configuration of stars, α Ceti (Mira) and area. (It is now about mag. 3.)

Rhep - at about mag. 8; RX Eri, about mag. 10.

C-14, 32: M36, M37, M38, area of α Per, but did not see IC 289 with certainty in the main "scope";

NGC 1232, β S in Eri - found by star hopping from τ^4 and τ^5 Eri on U 311.

NGC 1232

M. Dec. 22 19:20 - 19:25 UT ϵ
sun 2g 109 RSN 30

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

Su. Dec. 28 18:55 - 19:00 UT ss
sun 3g 195 RSN 44

C-8, 32, 28, 20, 15.5
A.P.F.

S.-M. Dec. 28-29 22:30 - 22:50 UT 00 twl C-14, 32 K α

- Saturn and 2 moons, Venus, a very thin crescent, Mars - quite small, Jupiter and 3 moons

03:15 - 04:10 UT 00 andy considerable cloud ne

- Various stars and winter constellations seen among the clouds.

W.-Th. Dec. 31 - Jan. 1 22:40 - 22:55 UT on Hwy. 38 α and in Shaw's Lake twl. ne

Venus, Crescent Moon, Jupiter in very clear SW. twl. sky.

02:20 - 03:50 UT y S-8? T 9.5! temp. ⁻²³-⁻²⁵! 20x100b.

Rhep - (bright - about mag. 7.0 or brighter, R Eri, RX Eri, M42, M43, M78, NGC 2169 (the so-called "37" cluster, but in the binoculars it appeared too small to see the numbers clearly, area of Sh 2-261, but very faint

(see U 181), Mira - about mag. 3.1, Saturn, NGC 2244 and Rosette, S Mon open. R Leonis - bright - about mag. 6.5! NGC 1999 SE of M42 (see U 270-7)

1998

2169

1999 Ori (over)

NGC 1979 is a bright nebula surrounding the variable star V 380 Ori.
The nebula was faint, and I could not be sure of seeing the
star (though I probably did) since its magnitude range is
mag. 8 to 11. (See S. + T., Jan. 1998, page 94)

Relative Sunspot Numbers

Date	My Observation	AAVSO	SIDE Brussels	My Observation	AAVSO	SIDE Brussels	Date	My Observation	AAVSO	SIDE Belgium
1997	Observation		Brussels	June 19	11	140	10	Sept 24	31	
Feb. 28	0	0	0	22	0	1	12	26	17	
Mar. 9	0		18	26	29	22	15	27	15	
11	0		13	27	0	14	12	Oct. 5	11	
12	0		15	July 6	0	3	8	7	12	
13	0		14	6	0	4	10	1590 - 10	0	
15	0		25	7	0	22	26	11	14	
16	0		11	9	0	18	17	14	35	
18	0		12	10	0	2	13	19	22	
19	0		0	11	0	0	0	20	22	
1510 - 22	0		0	1550 - 18	0	3	7	28	13	
23	0		0	19	0	0	0	Nov. 16	0	
24	0		0	22	0	7	11	27	20	
27	0		10	24	0	43	29	29	30	
Apr. 1	14	24	17	28	0	5	11	Dec. 8	11	
4	28	42	27	29	0	2	11	1600 - 14	26	
6	14	20	20	30	0	0	0	20	11	
9	17	24	21	31	0	0	0	21	27	
14	24	26	24	Aug. 2	0	5	8	22	30	
21	0	0	0	3	11	16	13	28	44	
26	11	16	17	4	11	13	9			
29	0	9	8	5	11	20	17			
May 2	0	1	0	6	37	42	36			
4	0	1	8	7	52	46	41			
10	12	16	17	8	28	48	45			
1525 - 14	11	16	13	9	24	39	38			
23	22	43	40	10	0	22	21			
25	55	34	29	18	11	13	18			
26	11	36	35	19	11	12	9			
27	0	24	23	24	0	1	0			
June 1	15	33	20	25	15	17	18			
3	22	22	15	26	18	24	21			
4	22	16	11	29	35	48	35			
5	22	16	11	30	24	57	43			
6	24	18	12	Sept. 5	16					
8	11	21	19	8	66					
10	11	11	8	9	72					
11	11	10	8	15	52					
14	13	22	19	16	46					
15	18	23	19	18	12					
				20	11					
				21	11					
				22	28					
				23	28					

[Faint, illegible handwritten notes covering most of the page]

C-14 C-8 Ast
 8.8mm 444.3 2273 5ab

TELESCOPE MAGNIFICATION

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

TELESCOPE PARAMETERS

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

USEFUL MAGNIFICATION (0.2D to 2D)

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

STELLAR MAGNITUDES FOR COMPARISON PURPOSES

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

Local Mean Sidereal Time

For 1997:

$$\text{L.M.S.T.} = 6.^{\text{h}}646551984 + 0.^{\text{h}}0657098243\text{d} \\ + 1.^{\text{h}}00273790934\text{t} - 5.^{\text{h}}11123737$$

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

$$\text{Latitude: N. } 44^{\circ} 45' 32" \\ 44.^{\circ}758$$

FABRIQUE
MADE IN