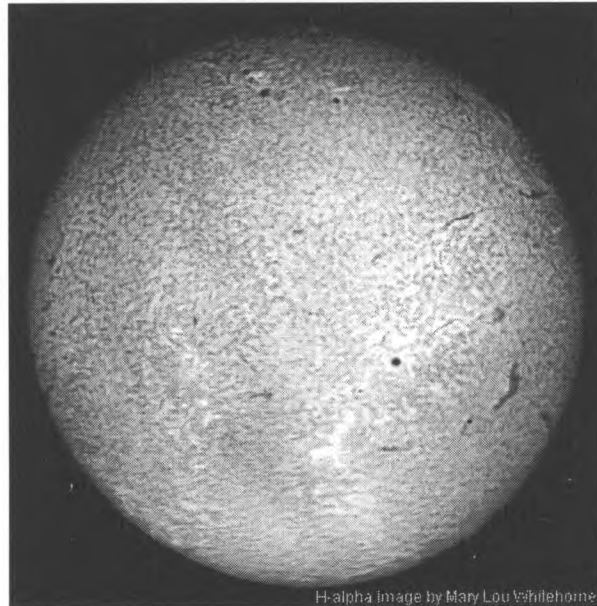


Solar Observations

Volume 1 1983 to 1995



by Bertus (“Bert”) Rhebergen

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NOTE: SPOT GROUP COMING AROUND SUN'S LIMB, SHOWING SUN'S ROTATION

NOV. 15/90 page 87

DEC. 12 page 89

JAN. 8/91 page 92

FEB. 5 page 94

(MAR. 5)? page 97

NOTE: EARTH'S PERIHELION JAN. 2/93 page 130

APHELION JUNE 24/93 page 140

PERIHELION DEC. 11/93 page 151

APHELION JULY 2/94 page 161

NOTE: AURORAL ACTIVITY PREDICTED AT RASC CLUB MEETING 93/5/6
SPOT GROUP SEEMED TO HAVE ∞ SHAPE ("S" SHAPE) page 137 5/6

AURORAL ACTIVITY TOOK PLACE 93/5/9 11:00 PM. E.D.T. page 137 \leftrightarrow 73

NOTE: SOLAR ECLIPSE MAY 10/94 pg. 157 \leftrightarrow 76

pg. 157 \leftrightarrow 77

NOTE: LAUNCHING OF HST., APR. 24/90 8:30 AM E.D.T. page 66

NOTE: IAN STUART LIBRARY DEDICATION, NOV 18/90 page 88

NOTE ERIC GOLDING'S OBSERVATION OF SUNSPOTS, JUNE 26/94

SMALL CIRCLES page 6 page ⑥ 83-180

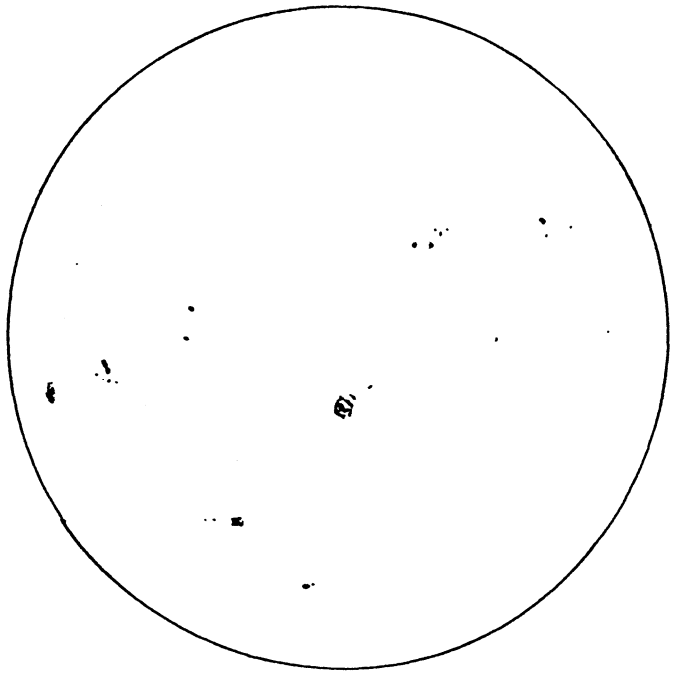
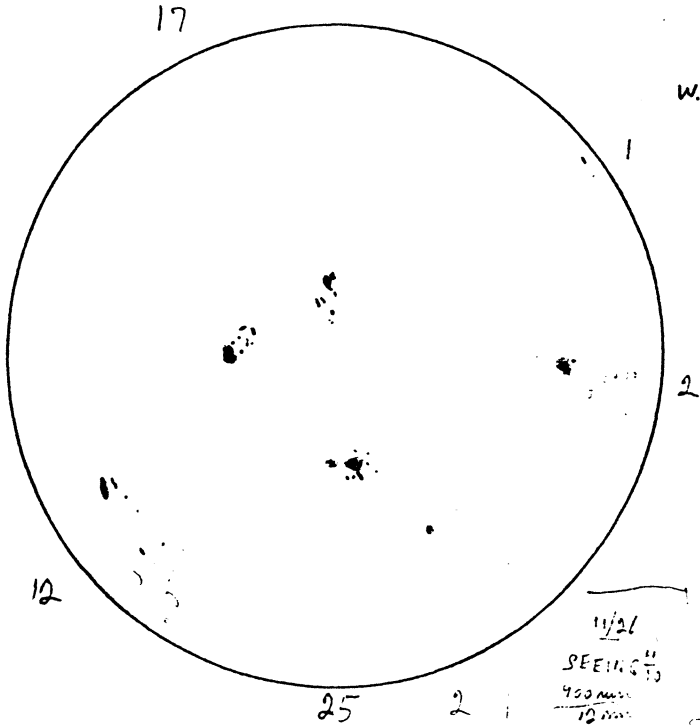
BERTUS RHEBERGEN

1940/SEPT. 8

NOV. 26/89 2:00-2:17 P.M. E.S.T.
 SKIES CLEAR;
 SEEING $\frac{6}{10}$, RIPPLES ALONG SOLAR LIMB
 TRANSP. $\frac{9}{10}$, FACULAE VERY EVIDENT

f8 $\frac{900\text{mm}}{25\text{mm}}$

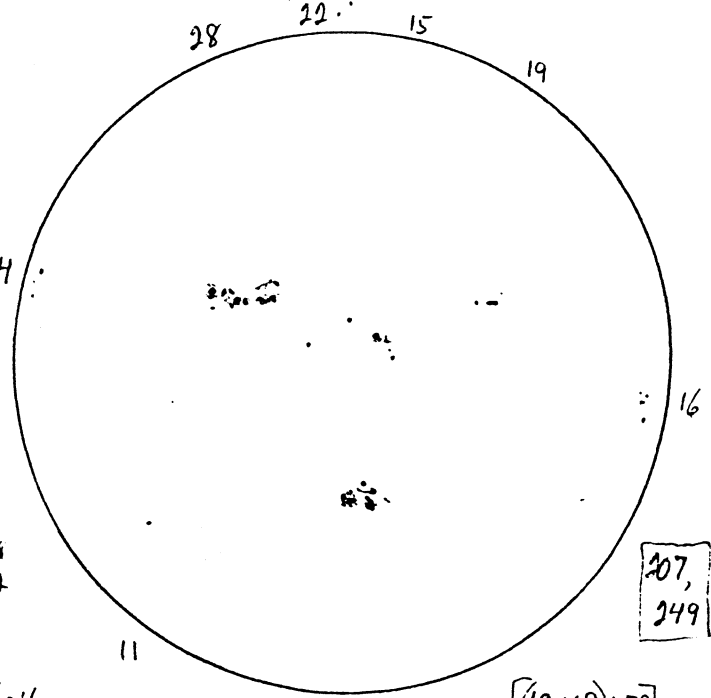
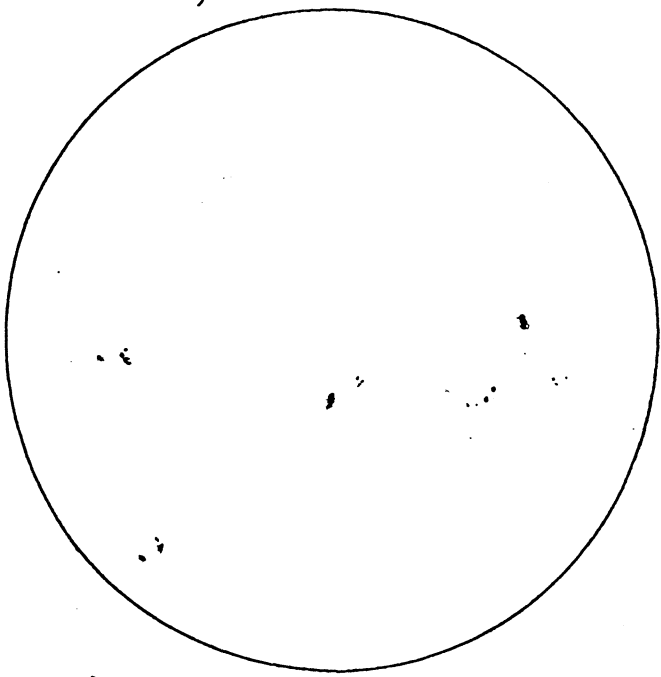
NOV. 29 12:30-12:45 P.M. E.S.T.
 SKIES CLEAR IN SUN'S AREA; LIGHT BREEZE.
 SEEING $\frac{7}{10}$, RIPPLES ALONG SOLAR LIMB.
 TRANSP. $\frac{9}{10}$, FACULAE VERY EVIDENT



11/26
 SEEING $\frac{6}{10}$
 $\frac{900\text{mm}}{25\text{mm}}$
 SUNSPOT # $(10 \times 7) + 6 = 76$
 198, 184

DEC. 18 12:30-12:40 P.M.
 RAPID DRAWING. E.S.T.
 CLEAR SKIES IN SUN'S AREA.
 STEADY, VERY DETAILED IMAGE.

DEC. 28 12:30-12:35 P.M. E.S.T.
 VERY LIGHT BREEZE; SKIES CLEAR IN
 TRANSP. $\frac{9}{10}$, SEEING $\frac{7}{10}$ SUN'S AREA



$(10 \times 8) + 4$
 $10 \times 8 + 18$
 $10 \times 2 = 22$
 10×145
 $10 \times 1 + 9$
 $10 \times 1 + 8 = 18$
 $10 \times 1 + 14$
 $10 \times 1 + 1$

207,
 249

$(10 \times 9) + 59$
 = 149

RAPID SUNSPOT COUNT 89/12/23 10:30 AM E.S.T.
 $\frac{700\text{mm}}{30\text{mm}}$ $[(10 \times 9) + 22] = 112$

SUN SPOT COUNT = 149
 $\frac{900\text{mm}}{12}$ 12:40 P.M. E.S.T.
 TELESCOPE VIBRATED
 IN BREEZE

108, 105

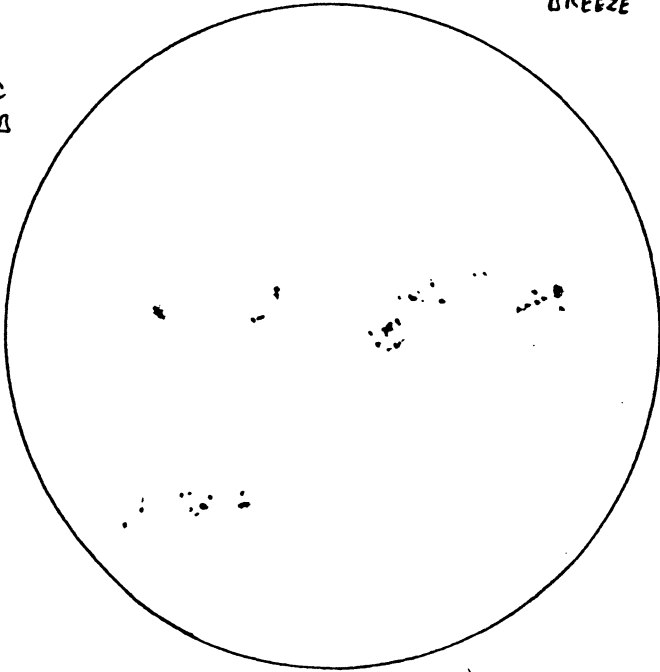
NEWCASTLE, AUSTRALIA
 6.5 RICHTER SCALE 12/28

57

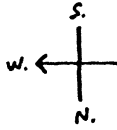
NOV. 6/89 12:15-12:30 P.M. E.S.T.
 RAPID SKETCH; FAST MOVING CLOUDS IN
 5% CLEAR SKY

SMALL TO MEDIUM BRANCHES MOVE IN
 BREEZE

10°C
 FRB

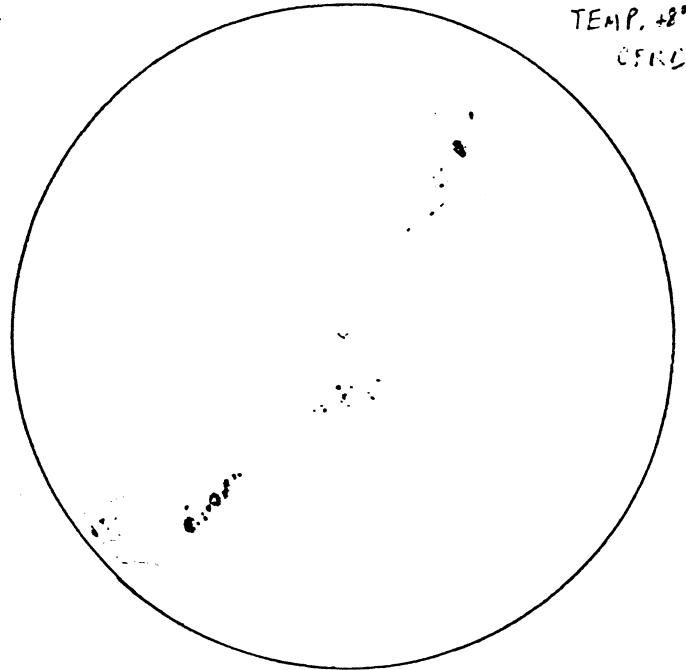


f 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$



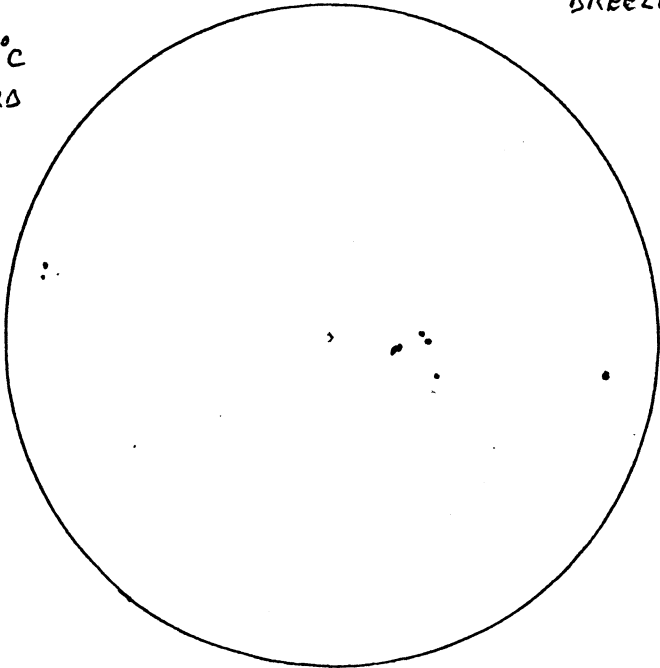
NOV. 13/89 11:40 AM - 12:35 P.M. E.S.T.
 SKIES CLEAR, NO BREEZE IN OBS. PARKING
 SEEING $\frac{6}{10}$; RIPPLES ALONG SUN'S LIMB
 TRANSP. $\frac{9}{10}$; FACULAE VERY EVIDENT

TEMP. +8°C
 CFRB

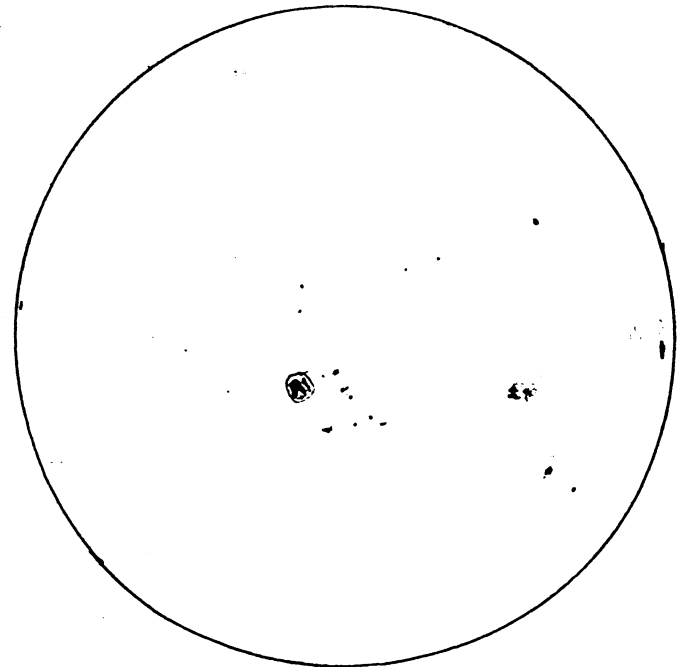


NOV. 21 12:40 P.M. E.S.T.
 VERY RAPID SKETCH IN BETWEEN
 95% SOLID DRIFTING CLOUD COVER.
 SMALL TO MED. BRANCHES MOVE IN
 BREEZE.

-6°C
 CFRB



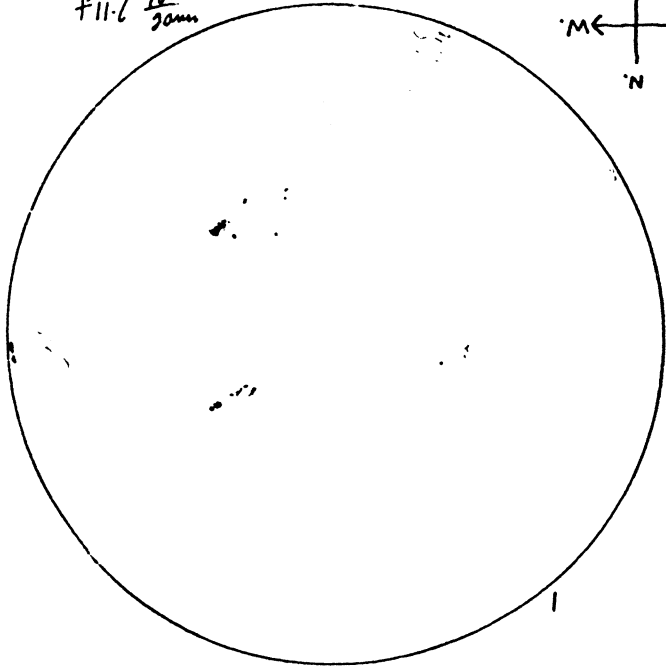
NOV. 23 12:30 - 12:45 P.M. EST.
 SKIES CLEAR IN SUN'S AREA.
 TRANSP. $\frac{8}{10}$ FACULAE EASILY SEEN.
 SEEING $\frac{7}{10}$ SMALL RIPPLES ALONG SUN'S
 LIMB.



SPOT 10% TO LARGE

OCT. 26/89 12:25-12:35 P.M. E.O.T.
 LIGHT HAZE IN SUN'S AREA
 STEADY IMAGE

f11.6 $\frac{700 \text{ mm}}{30 \text{ mm}}$

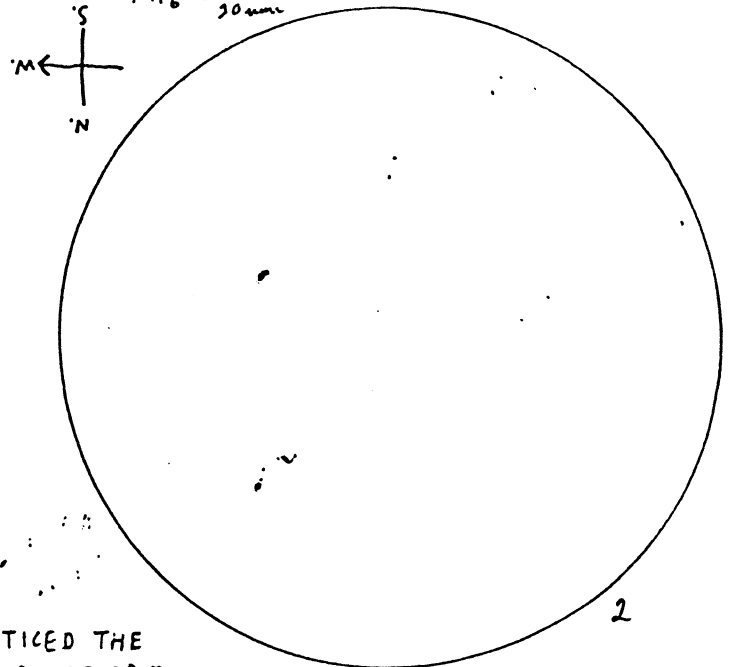


OCT. 27 12:35-12:45 P.M. E.O.T.

THIN HAZE → CLEAR SKY

RIPPLES ALONG SUN'S LIMB. DETAIL SHARP

f11.6 $\frac{700 \text{ mm}}{30 \text{ mm}}$

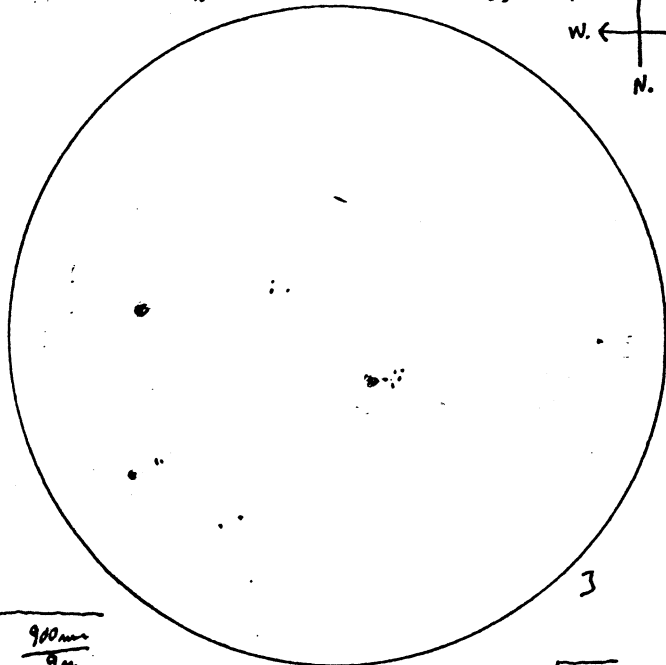


I NOTICED THE
 PATTERN OF SPOTS
 FROM THE SKETCH, NOT
 FROM VIEWING THE SUN

OCT. 28 1:26-1:30 P.M. E.O.T.
 LIGHT HAZE IN SUN'S AREA
 SEEING $\frac{7}{8}$

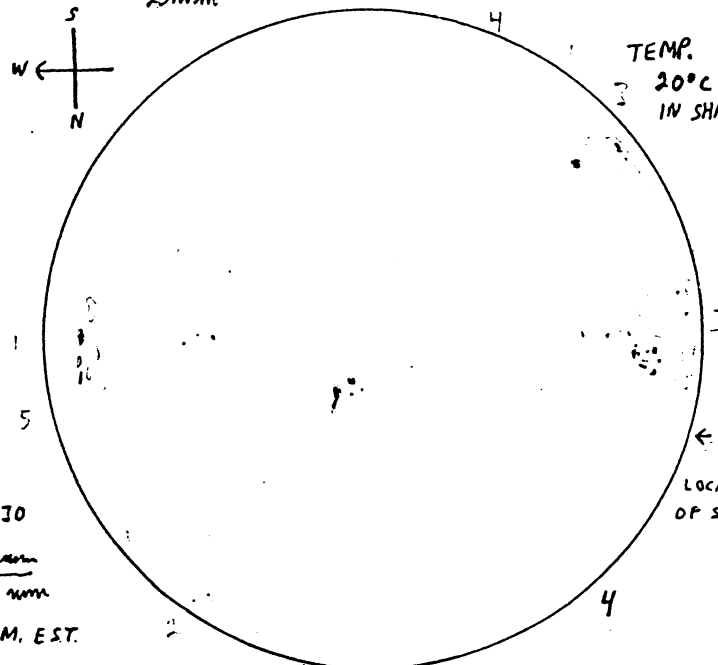
TRANSP. $\frac{5}{10}$

f8 $\frac{900 \text{ mm}}{25 \text{ mm}}$



OCT. 30 2:10-2:45 P.M. E.S.T.
 LIGHT HAZE IN SUN'S AREA
 SEEING $\frac{7}{8}$; SOME RIPPLES ALONG LIMB
 TRANSP. $\frac{9}{10}$; GRAINY STRUCTURE GLIMPSED

f8 $\frac{900 \text{ mm}}{25 \text{ mm}}$



TEMP.
 20°C
 IN SHADE

1
5
2
12
31
1
3
4
59

89/10/30

$\frac{900 \text{ mm}}{12 \text{ mm}}$

3:20 P.M. EST.

REL. # SUNSPOTS
 (8 x 10) + 59 = 139

89/10/30

153, 156

ERASED DRAWING
 SEPT. 27; USED WRONG
 CIRCLE

55

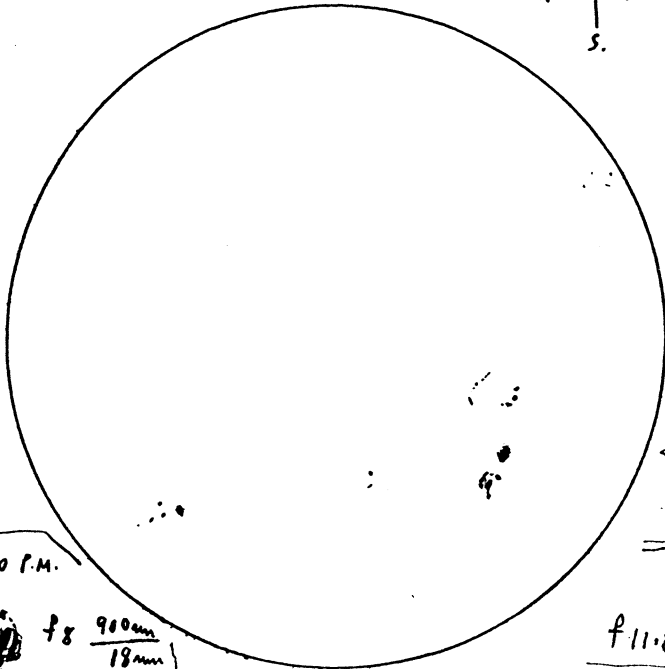
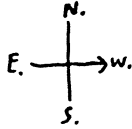
$\frac{900 \text{ mm}}{9 \text{ mm}}$

89/10/29
 3:30 P.M.
 E.S.T.
 CIRRUS
 SANDS
 COPIED FROM SKETCH 10/30 11:00 P.M.

OCT. 22/89 2:40 - 3:00 P.M. E.D.T.

SKIES CLEAR

f11.6 $\frac{700mm}{30mm}$ AMICI PRISM



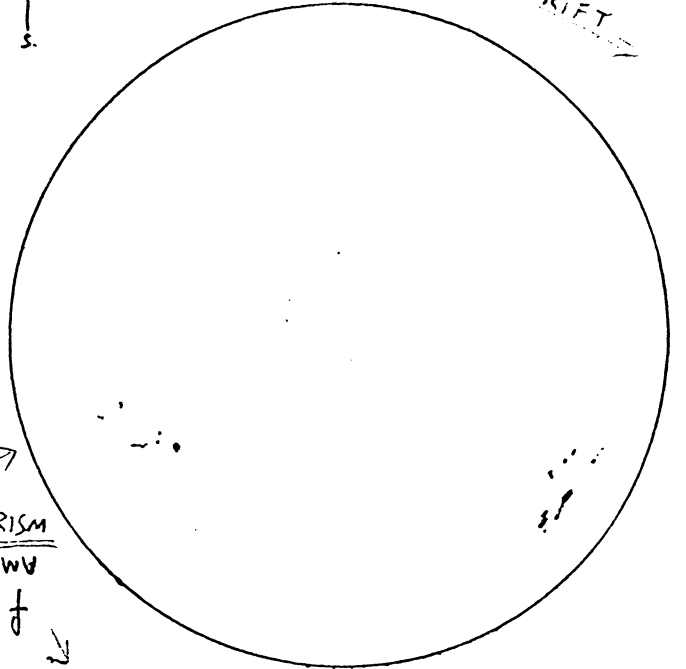
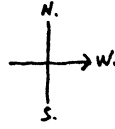
40 P.M.
f8 900mm
18mm
89/10/22

OCT. 23 3:50-4:07 P.M. E.D.T.

THIN CIRRO-STRATUS CLOUD IN SUN'S AREA

SMALL SPOTS EASILY VISABLE

DRIFT



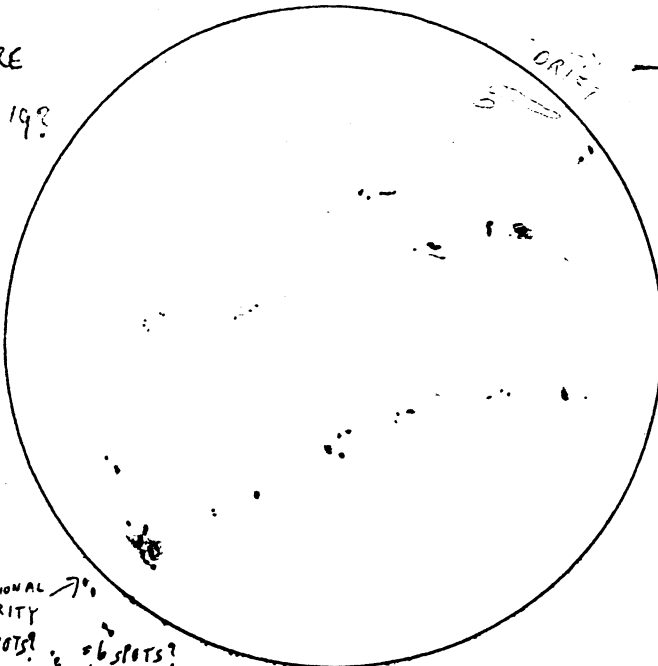
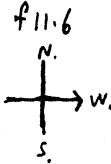
f11.6
AMICI PRISM
AMICI PRISM

f11.6

SKIES CLEAR WITH FAST-MOVING CLOUDS
TRANSP. $\frac{8}{10}$ IMAGE VERY DETAILED

SEEING $\frac{5}{10}$ IMAGE "FUZZY" AT TIMES

OCT. 16 2:00 - 2:30 P.M. E.D.T.



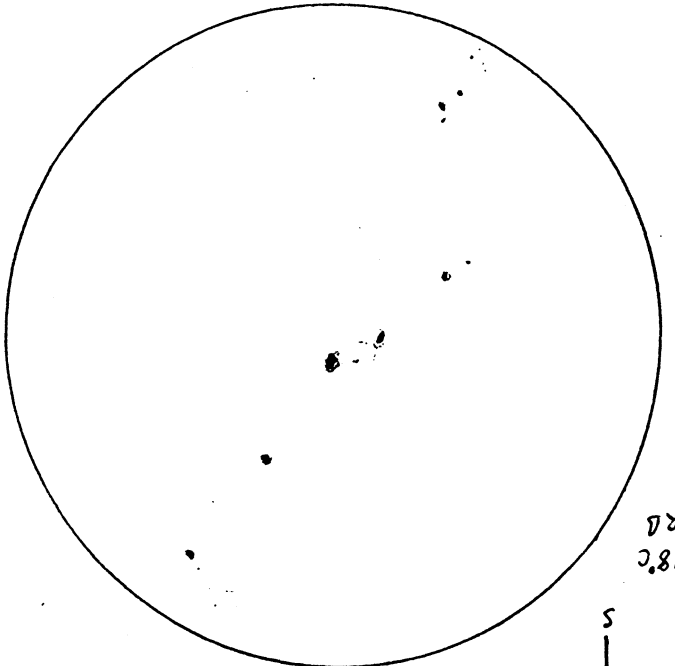
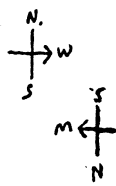
ARE
ST. 19?

OPTIONAL
CLARITY
SPOTS?
6 spots?
3 spots?

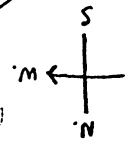
OCT. 13/89 12:30-12:50 E.D.T.

SKIES CLEAR, SHARP IMAGE; SLIGHT BREEZE

f11.6 $\frac{700mm}{30mm}$



18C
CFR



22.0C IN OBSERVATORY YARD

DRAWING ERASED 1:50 P.M. AND
RESUMED UP-SIDE-DOWN. MIX-UP WITH
CO-ORDINATES BECAUSE OF AMICI PRISM

ESTIMATED # OF SUNSPOTS
BY APPEARANCE OF SKETCHES
 $102 = 19 + (10 \times 4)$

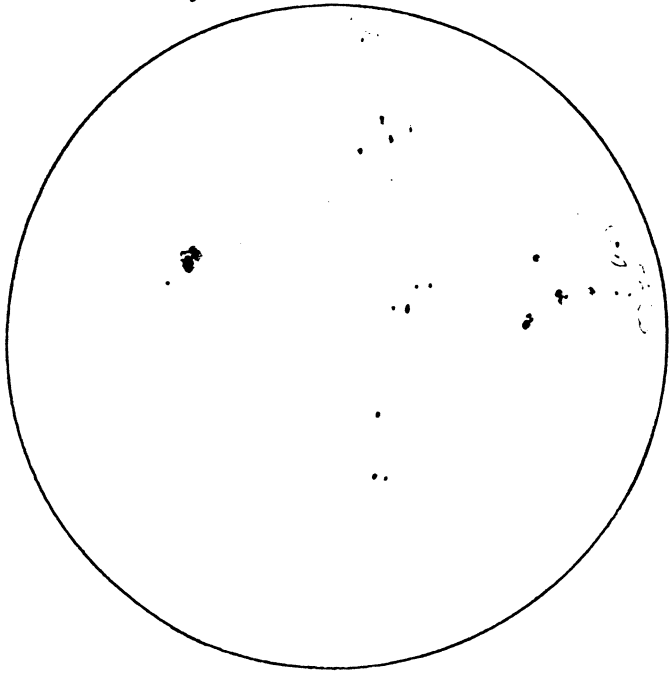
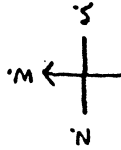
602, 111, 209

91-01-68

45

OCT. 5/89. 12:40 P.M. E.D.T.
 COPIED FROM SKETCH 7:00 P.M.
 HAZY CLOUD BANDS IN CLEAR SKIES

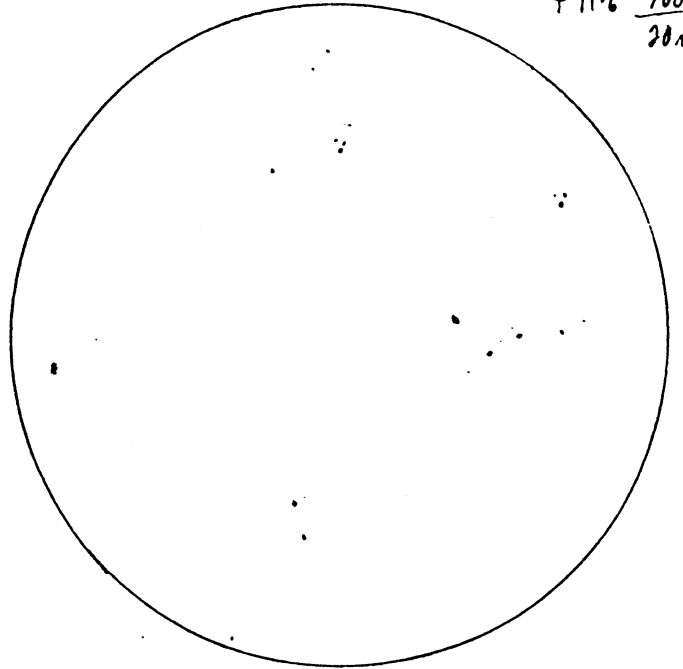
f 11.6 $\frac{700\text{mm}}{20\text{mm}}$ AMICI PRISM



1

OCT. 7 12:25-12:40 P.M. E.D.T.
 VERY CLEAR SKIES IN BETWEEN
 FAST MOVING BANKS.
 MEDIUM BRANCHES MOVE IN
 GUSTY BREEZE.

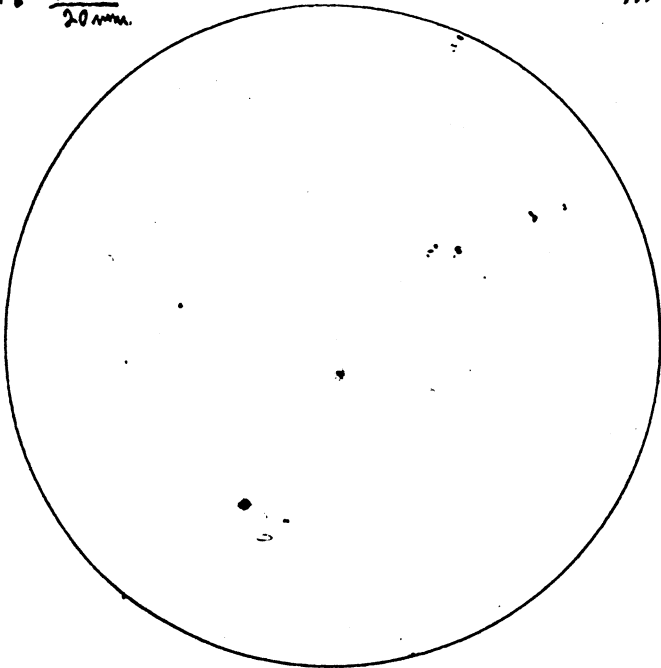
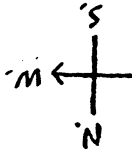
f 11.6 $\frac{700\text{mm}}{20\text{mm}}$



2

OCT. 11 12:15-12:35 P.M. E.D.T.
 FAST DRIFTING CLOUDS IN 20% CLEAR SKIES
 IMAGE STEADY, SHARP

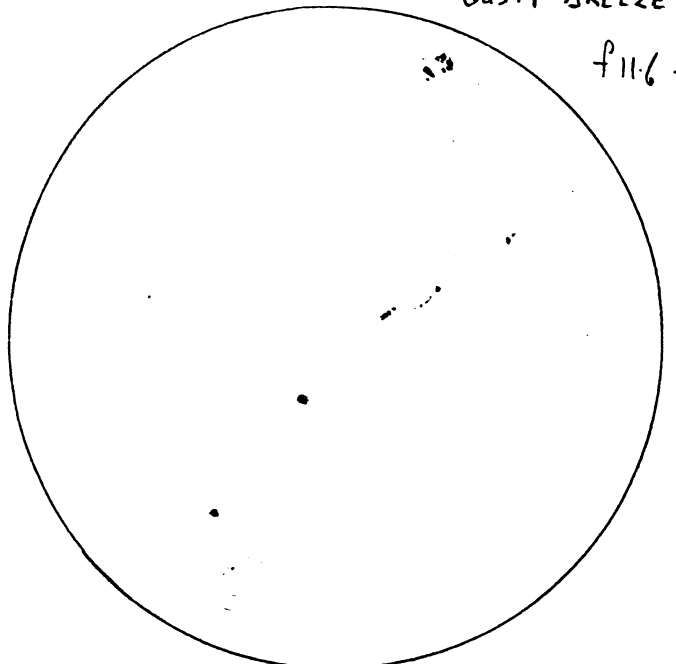
f 11.6 $\frac{700\text{mm}}{20\text{mm}}$



3

OCT. 12 12:15-12:35 P.M. E.D.T.
 SKIES CLEAR, GOOD IMAGE,
 SKETCHY DRAWING BECAUSE OF
 GUSTY BREEZE

f 11.6 $\frac{700\text{mm}}{20\text{mm}}$



4

10/9 SKETCH DRAWING ERASED
 BECAUSE OF CLOUD INTERFERENCE
 f 11.6

OCT. 1/89 2:40-3:10 P.M. E.D.T.

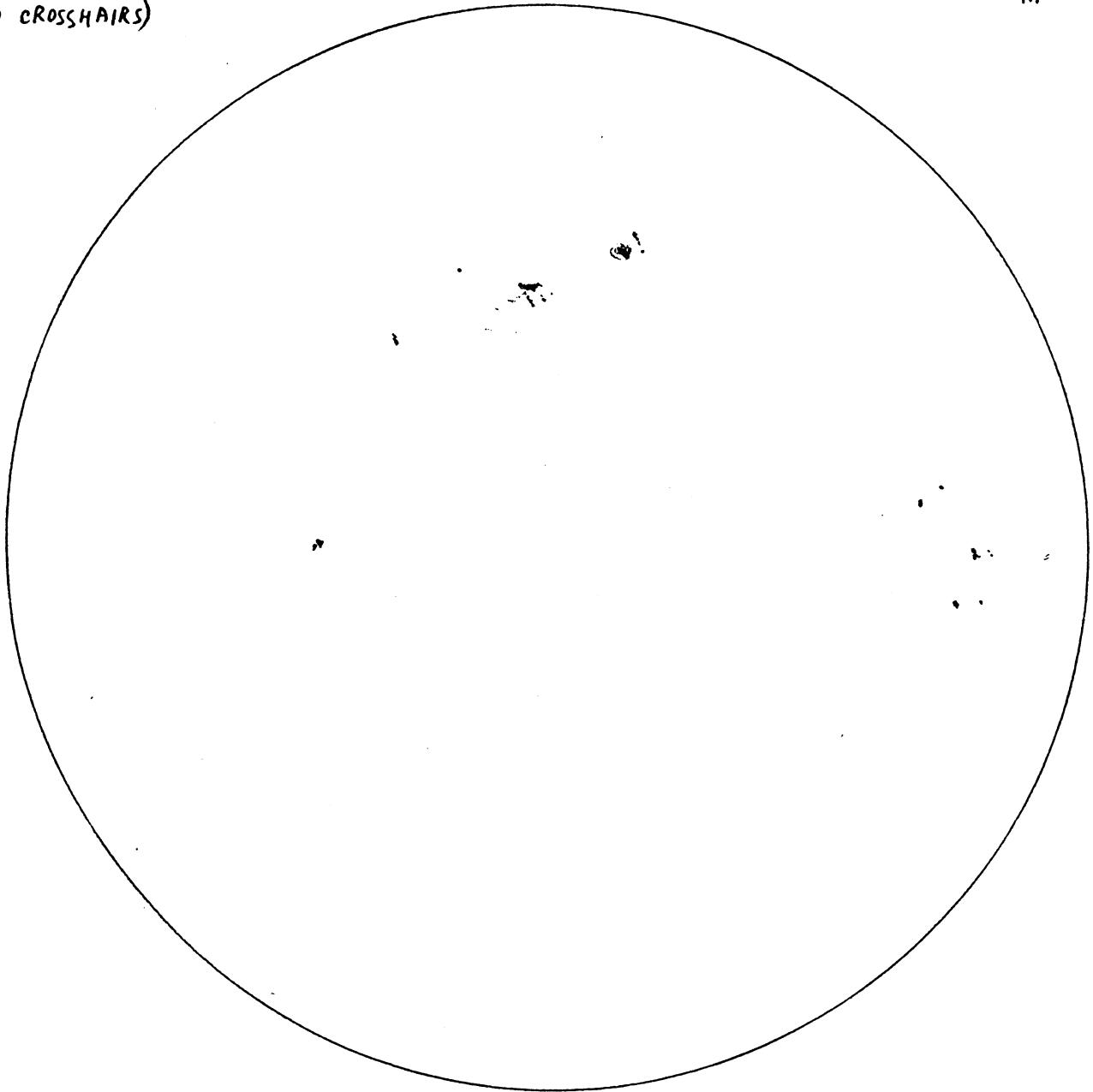
CLEAR SKIES

TRANSP. $\frac{7}{10}$ LARGE AMOUNT OF DETAIL

SEEING $\frac{8}{10}$ (SLIGHTLY FUZZY)



f 8 $\frac{900\text{mm}}{18\text{mm}}$
(NO CROSSHAIRS)



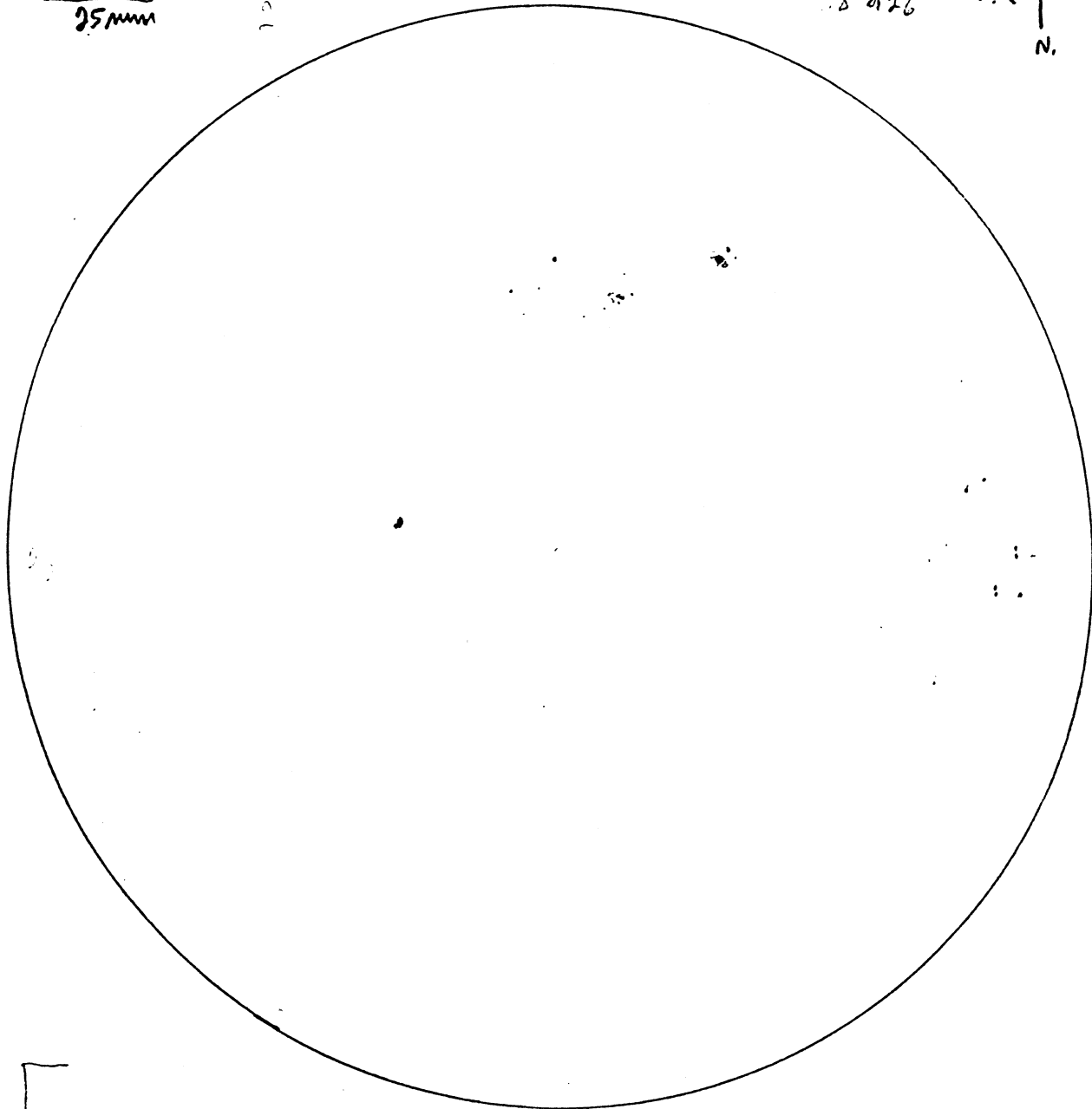
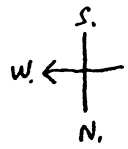
34

52

SEPT. 30/89 6:10 - 6:30 P.M. E.D.T.
 SKIES CLEAR, VERY LIGHT BREEZE.
 SEEING } $\frac{9}{10}$, STEADY
 TRANSP } , LARGE AMOUNT OF DETAIL ON SUN

f 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$

28 026



16

(33)

SPOT COUNT $\frac{900 \text{ mm}}{12 \text{ mm}}$

$$(3 \times 10) + 46 = 76$$

$$\overset{\sim}{(5 \times 10)} + 44 = 94$$

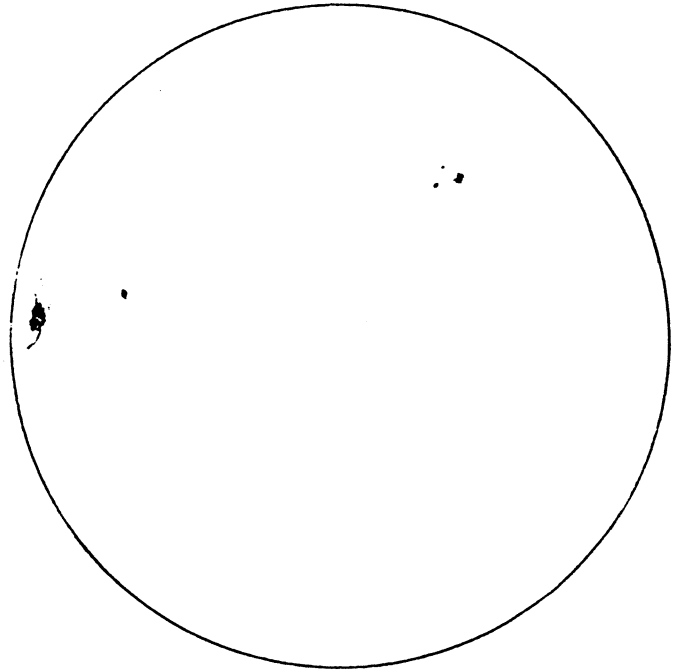
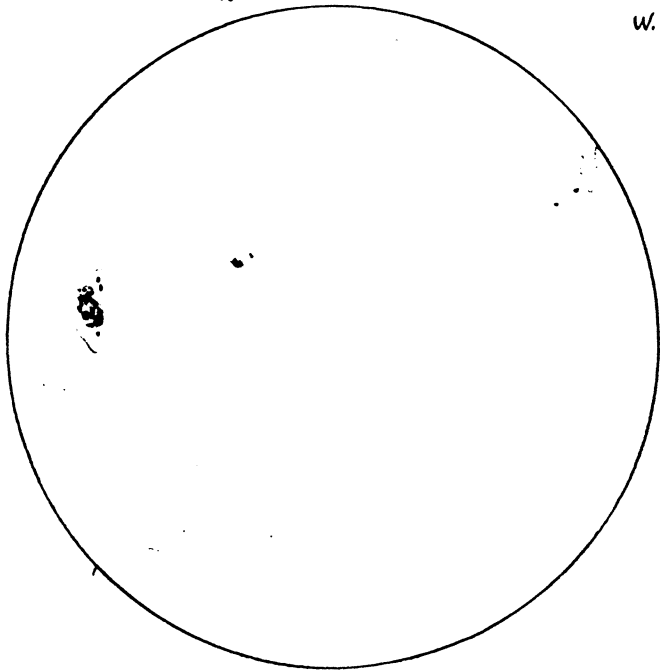
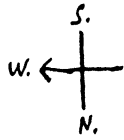
137, 149

(52)

SEPT. 25/89 12:30-12:36 P.M. E.D.T.
 SKIES CLEAR IN SUN'S AREA
 SEEING $\frac{7}{10}$ (RIPPLES)
 TRANSP. $\frac{9}{10}$ FAC. VERY APPARENT

f 8 $\frac{900\text{mm}}{25\text{mm}}$

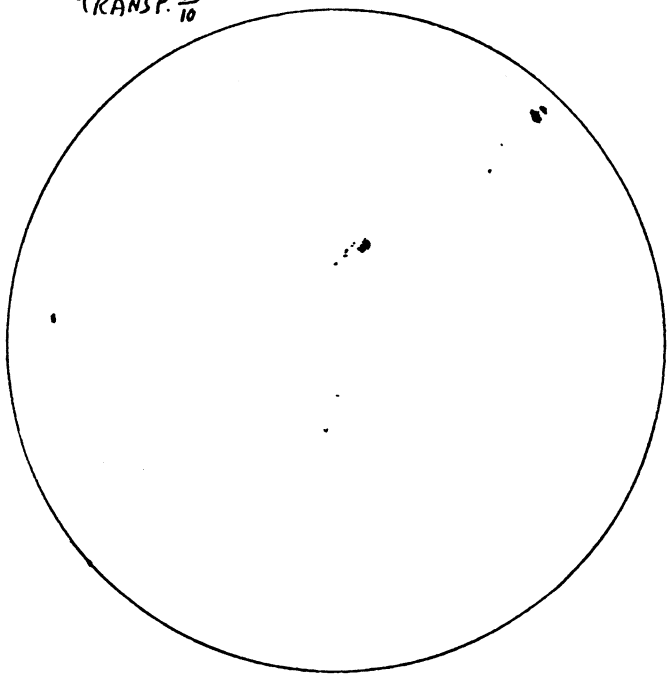
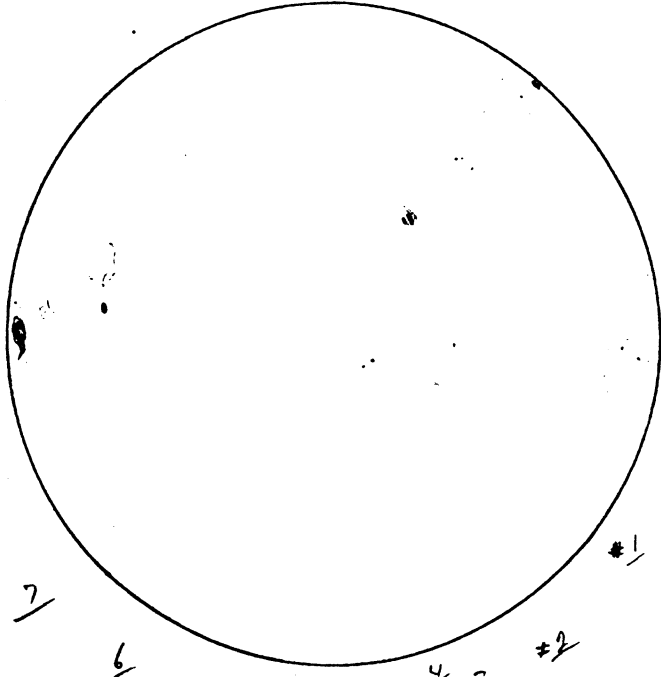
SEPT. 26 6:35-6:50 P.M. EDT
 SEEING $\frac{3}{10}$ EVENING TURBULENCE
 TRANSP. $\frac{6}{11}$



SEPT. 27 12:35-12:45 P.M. E.D.T.
 SKIES CLEAR, SMALL BRANCHES MOVE
 SEEING $\frac{7}{10}$ (STEADY IMAGE) IN BREEZE.
 TRANSP. $\frac{7}{10}$ (LARGE AMOUNT OF FACULAE)

LOCAL SUNSET TIME 7.10 P.M. E.D.T./

SEPT. 28 12:30-12:35 P.M. E.D.T.
 CLEAR SKIES, SMALL BRANCHES MOVE
 SEEING $\frac{6}{10}$ (RIPPLES) IN BREEZE
 TRANSP. $\frac{8}{10}$



SPOT NUMBER
 (7x10)+27=97,

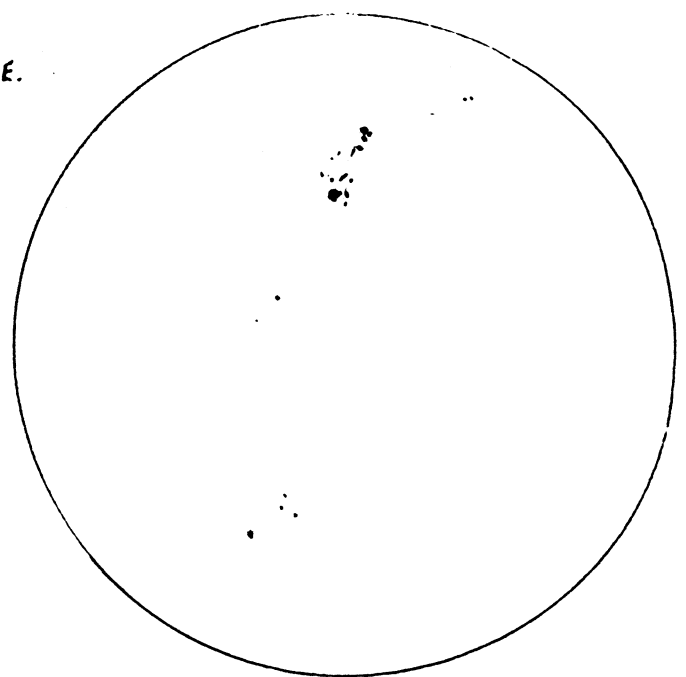
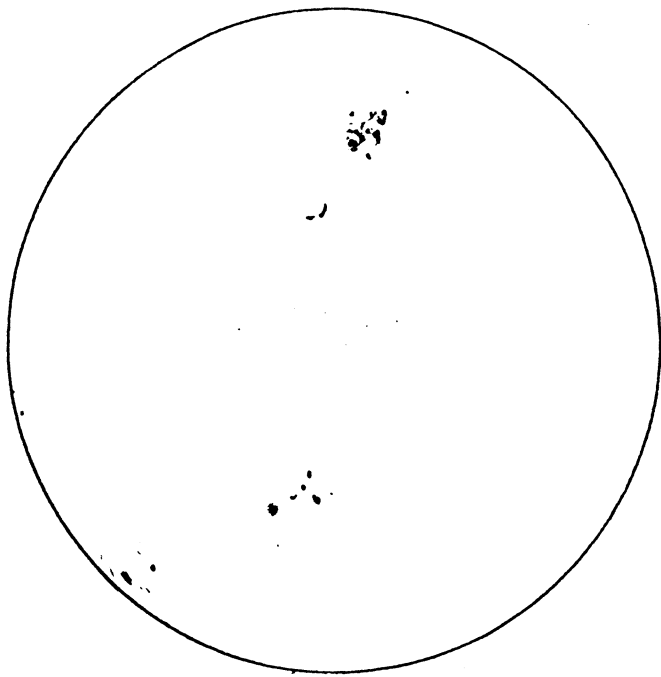
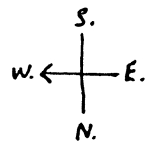
$\frac{900\text{mm}}{9\text{mm}}$

102, 107

SEPT. 19/89 12:30-12:45 P.M. E.D.T.
 LIGHT HAZE IN SUN'S AREA
 LIGHT BREEZE

f 8 $\frac{900 \text{ mm}}{35 \text{ mm}}$

SEPT. 20/89 12:30-12:47 P.M. E.D.T.
 LIGHT HAZE IN SUN'S AREA, IN 90%
 CLEAR SKIES

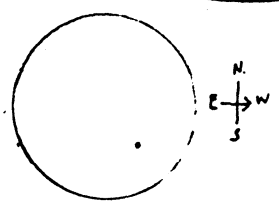
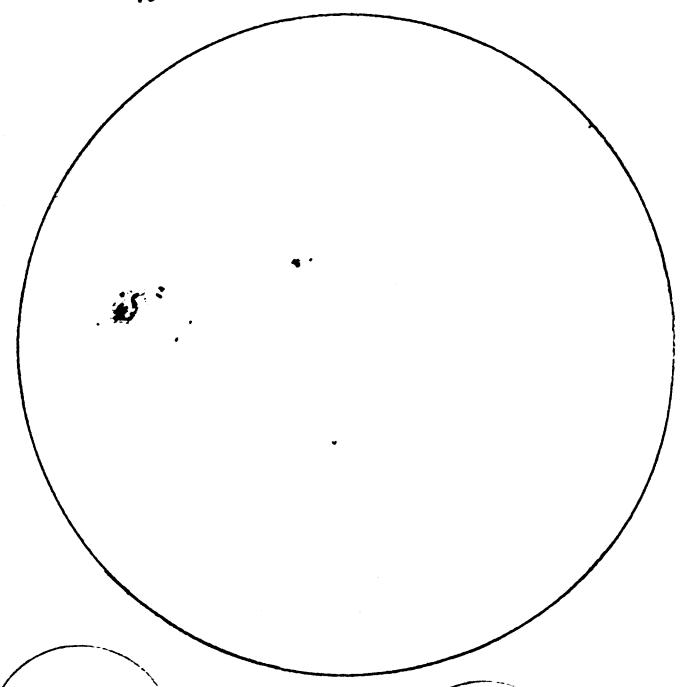
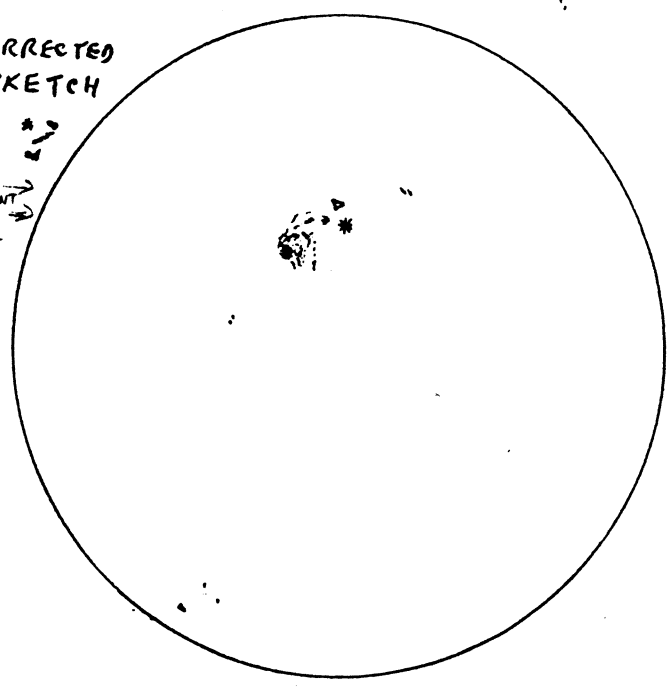


SEPT. 21 12:30-12:45 P.M. E.D.T.
 SKIES CLEAR(ED), HAZY CLOUDS
 DISAPPEARED

SEPT. 24 3:10-3:30 P.M. E.D.T.
 SLOW DRIFTING CLOUDS IN 40%
 CLEAR SKY.
 SEEING $\frac{6}{10}$
 TRANS. $\frac{8}{10}$

CORRECTED
 SKETCH

STENT
 F
 POT



7x35mm
 WITH FILTER
 ERECT
 +
 IMAGE

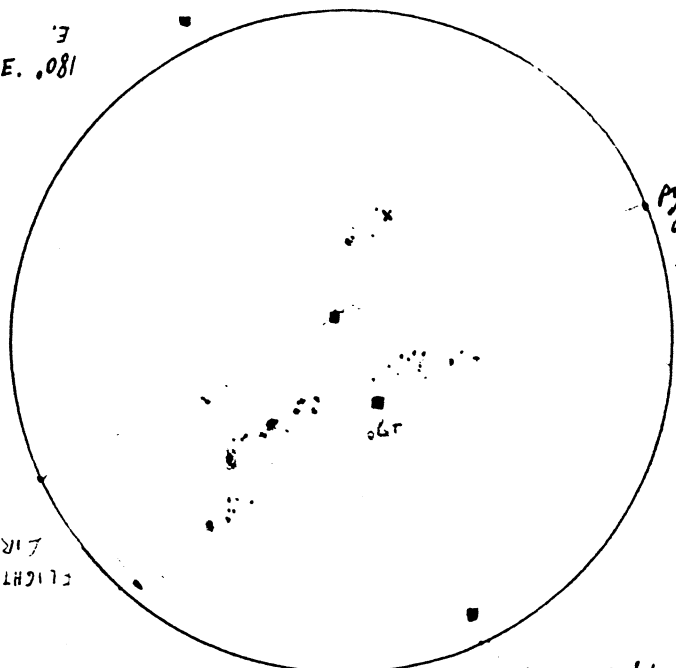
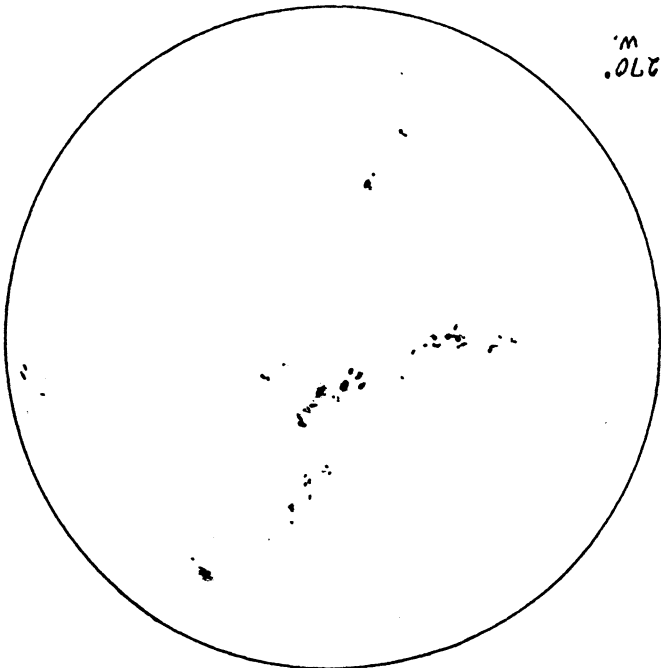
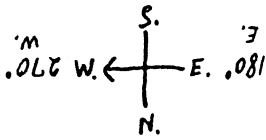
7x35mm
 PROJECT 1011

51

SEPT. 11/89 12:25-12:45 P.M. E.D.T.
 FAST DRAWING. DRIFTING CLOUDS IN
 SEEING $\frac{7}{8}$ CLEAR SKIES
 TRANSP. $\frac{3}{10}$

f 8 $\frac{900mm}{35mm}$

SEPT 12 6:40-7:20 P.M. E.D.T.
 SLOW DRIFTING CLOUD INTERRUPTED
 DRAWING. SUN REDDENED BY
 EVENING HAZE > 7:05



pg. 58
 OSS.
 HANDS.
 pg. 42
 NORT.
 STAR
 ATL.

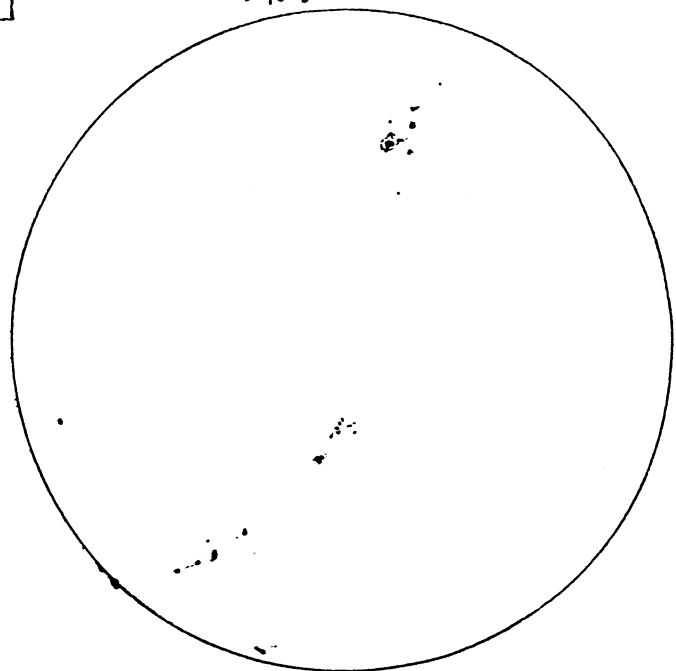
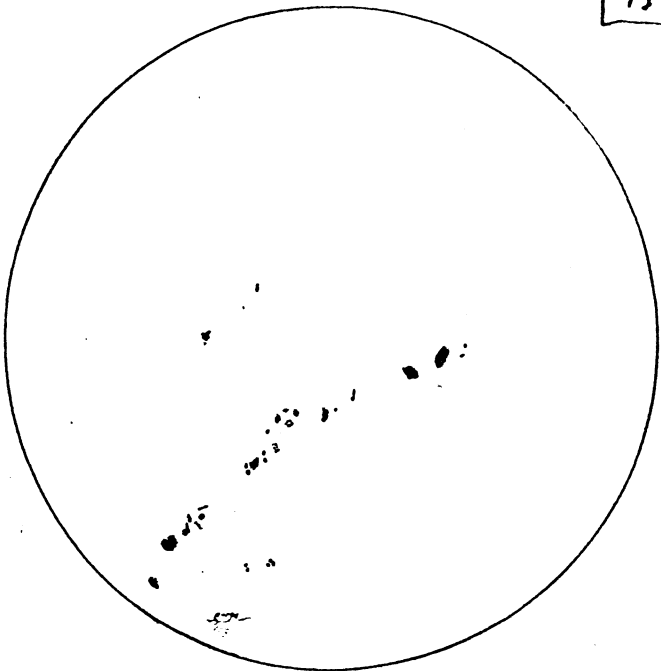
50217
 30 182172

SEPT. 15/89 12:33-12:55 P.M. E.D.T.
 SKIES CLEAR
 TRANSP. $\frac{7}{8}$
 SEEING $\frac{5}{10}$

LOCAL SUNSET TIME 7:25 E.D.T.
 CAY ST. + STRACHAN ST.

9/12
 $180^\circ = 87mm$
 $1^\circ = 0.4833mm$
 $7.3^\circ = 3.48mm$

SEPT. 18 1:15-1:30 P.M. E.D.T.
 SKIES CLEAR
 SEEING, $\frac{6}{10}$; TRANSP. $\frac{8}{10}$



SEPT. 16, RAIN
 SEPT. 17, OVERCAST

NORTHERN LIGHTS, SEPT 18-19.
 PULSATING ARCS AND RAYS
 ACROSS ZENITH.

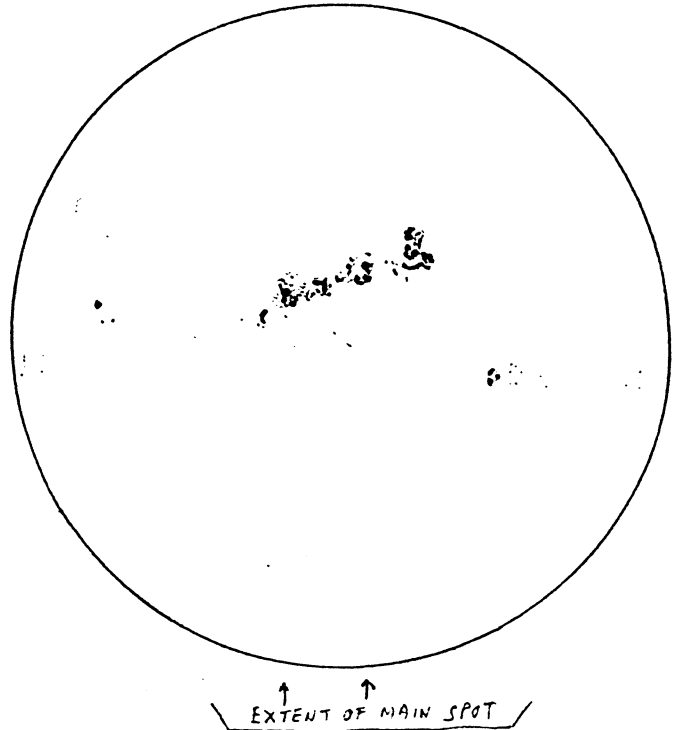
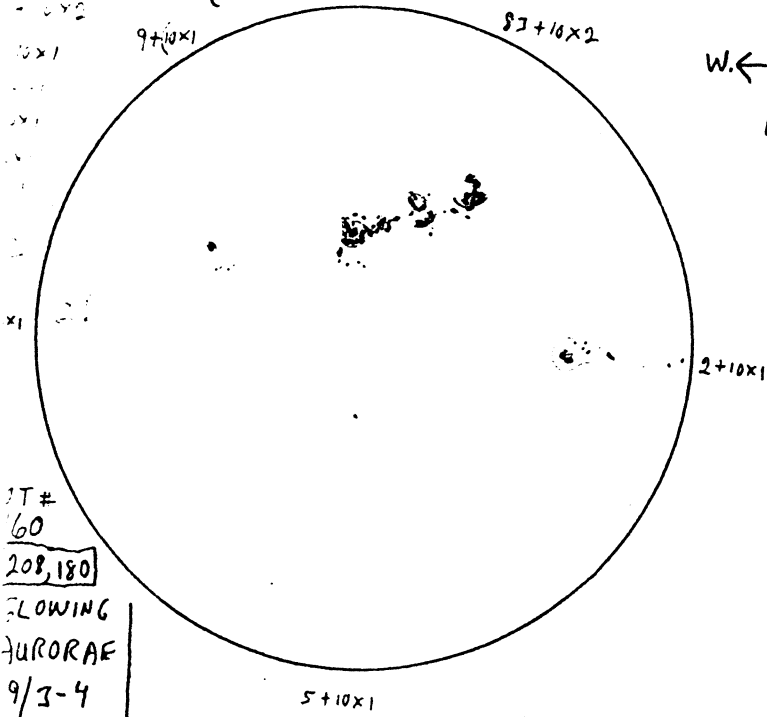
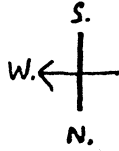
SEPT. 1, RSTATION #1820

← 12:00 M. E.D.T. →

SEPT. 3, 1989 5:40-6:05 P.M. E.D.T.
 SKIES CLEAR IN SUN'S AREA
 TRANS } $\frac{9}{10}$. IMAGE STEADY
 SEEING } GRAINY DISC CLEARLY
 (DRAYTON)

f 8 $\frac{900mm}{25mm}$

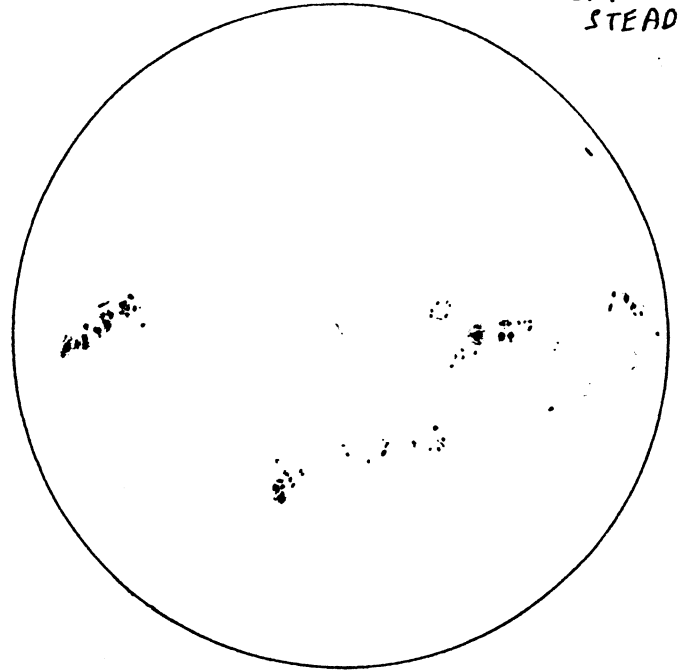
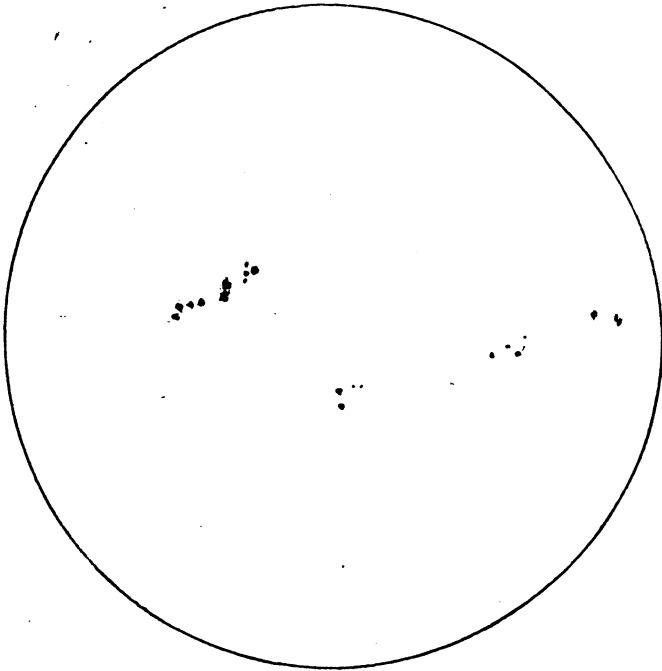
SEPT. 4 3:05-3:50 E.D.T.
 SKIES CLEAR IN SUN'S AREA
 < MED. BRANCHES MOVE IN WIND
 SEEING $\frac{6}{10}$ (FUZZY), TRANSP. $\frac{8}{10}$
 (DRAYTON)



IT#
 60
 208, 180
 FLOWING
 AURORAE
 9/3-4

SEPT. 6 6:30-6:50 P.M.
 EVENING HAZE WITH OVERCAST
 TRANSP. $\frac{2}{10}$, STEADY IMAGE

SEPT. 8 5:50-6:15 P.M. E.D.T.
 FAST DRAWING, RENNIE ST. PARKING LOT
 LIGHT HAZE; TRANSP. $\frac{2}{10}$, SEEING $\frac{9}{10}$
 VERY STEADY

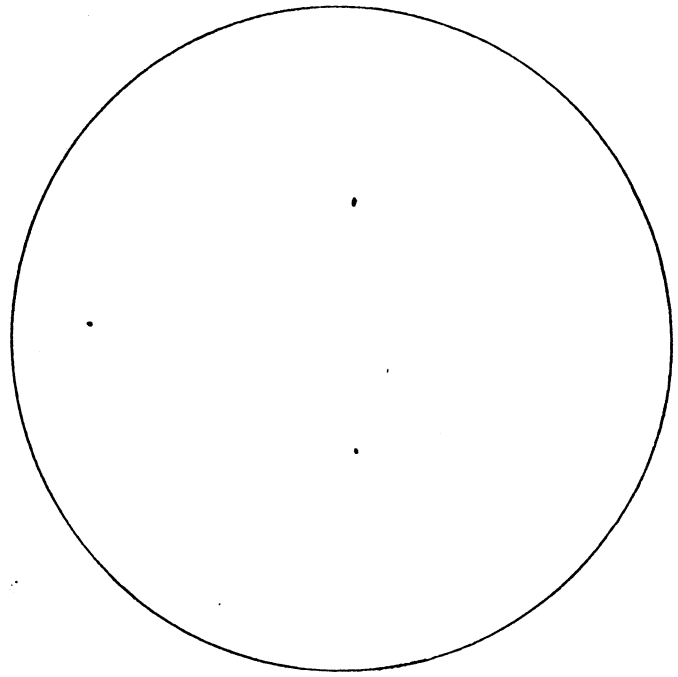
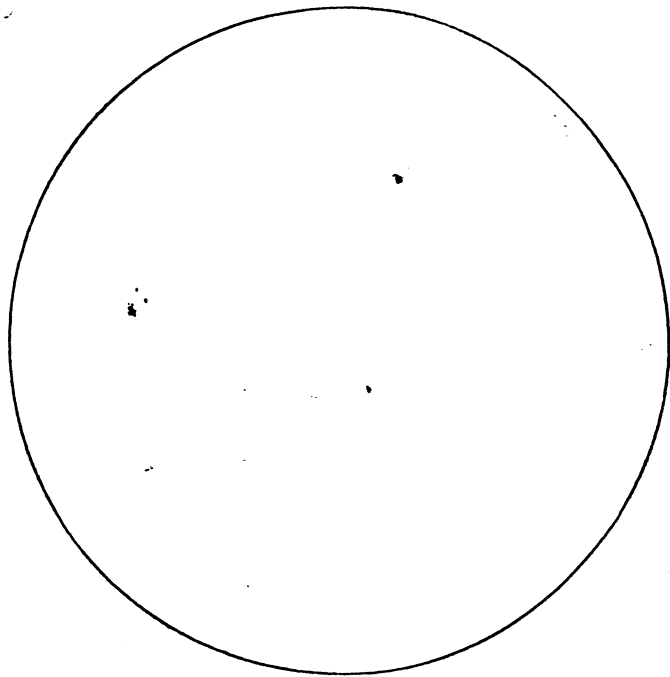
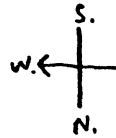


DETAIL ON ALL DAYS
 TO COMPLEX FOR 75X DRAWING
 (f 8 $\frac{900mm}{12mm}$)

AUG. 27 4:00 - 4:15 P.M. E.D.T.
 DRIFTING CLOUD IN 50% CLEAR SKY
 IMAGE LESS THAN AVERAGE (RIPPLES)

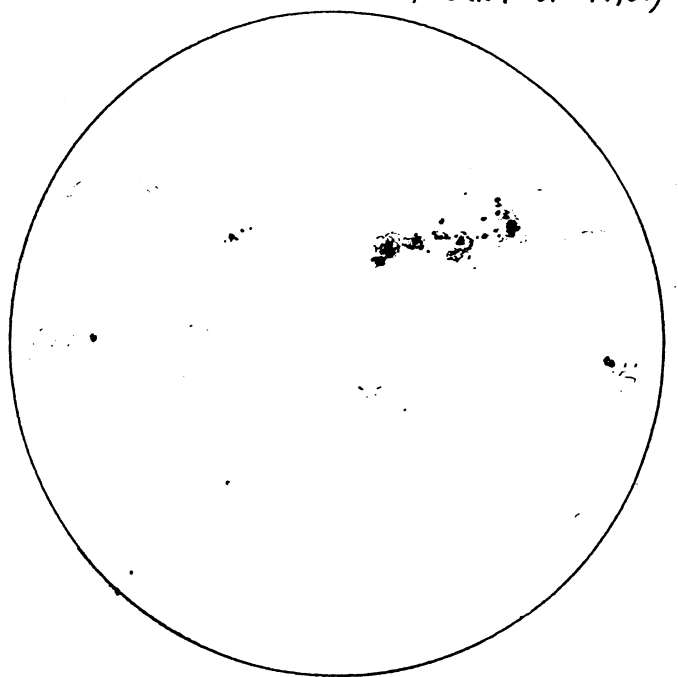
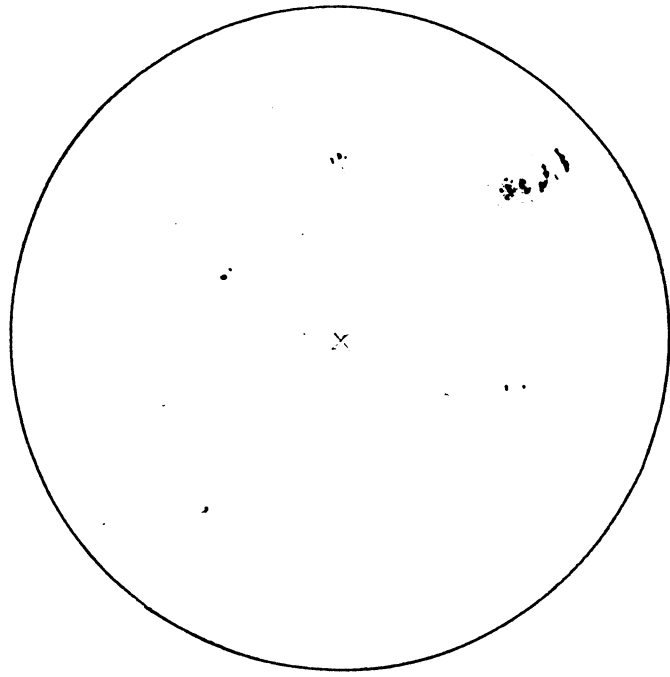
f 8 $\frac{900\text{mm}}{25\text{mm}}$

AUG. 28 12:45 P.M. E.D.T.
 POROUS SHEEP-WOOL CLOUD COVER



AUG. 31/89 7:20 - 7:40 P.M. E.D.T.
 TRANSP. WHEN SKIES CLEAR $\frac{9}{10}$
 BROKEN CLOUDS IN FRONT OF
 APPROACHING CLOUD BANK

SEPT. 2 2:55 - 4:05 P.M. E.D.T.
 INTERRUPTED BY FAST MOVING CUM.
 CLOUDS IN 40% CLEAR SKIES.
 SEEING $\frac{7}{10}$ (SLIGHT RIPPLES) TRANSP. $\frac{9}{10}$ (LARGE
 AMOUNT OF FAC.)



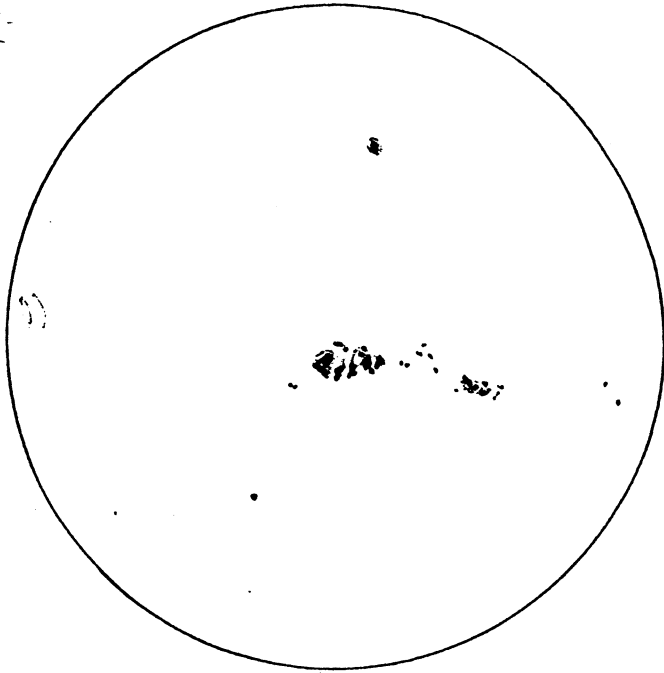
SUNSET 9:39 25°
 FAR. ALM. $+30 \leftrightarrow 80^\circ$
 8:59 E.D.T.
 (HAMILTON)

SPOT COUNT 163, 171
 $(10 \times 6) + 92 = 152$ REL. #
 $\frac{900\text{mm}}{9\text{mm}}$

48

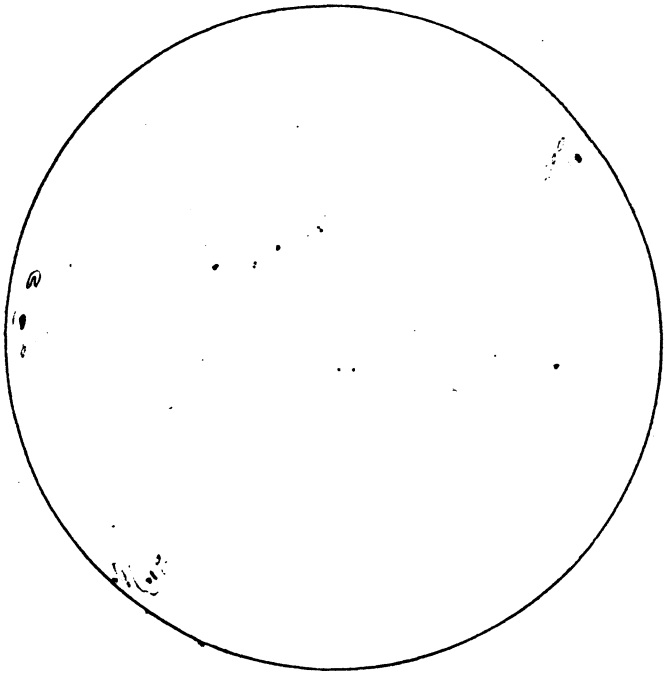
AUG. 17/89 1:55 - 2:25 P.M. E.D.T.
 TRANSP. $\frac{8}{10}$; SEEING $\frac{6-7}{10}$

WHITE CUM. CLOUDS IN 40% CLEAR SKY

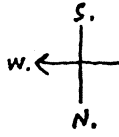


↑ ↑
 SIZE OF MAIN SPOT

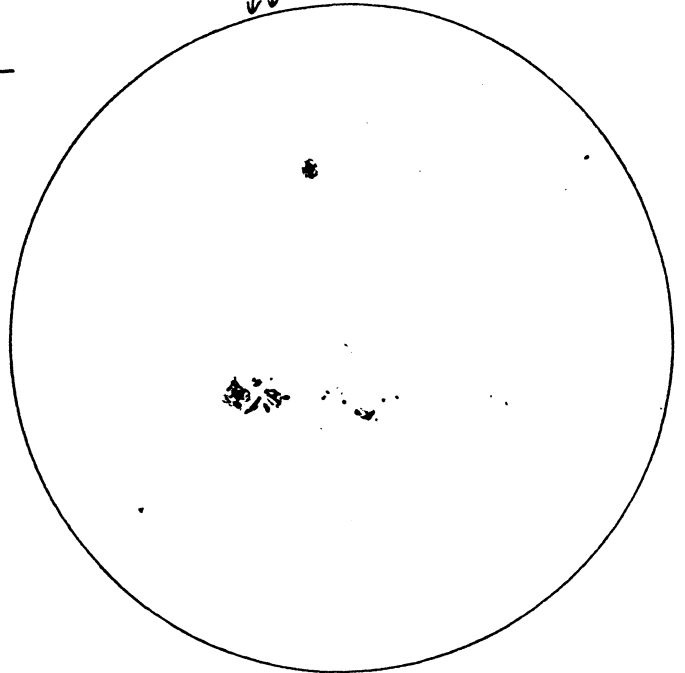
AUG. 24 12:30 - 12:40 P.M. E.D.T.
 SKIES CLEAR
 TRANSP. $\frac{8}{10}$; SEEING $\frac{8}{10}$



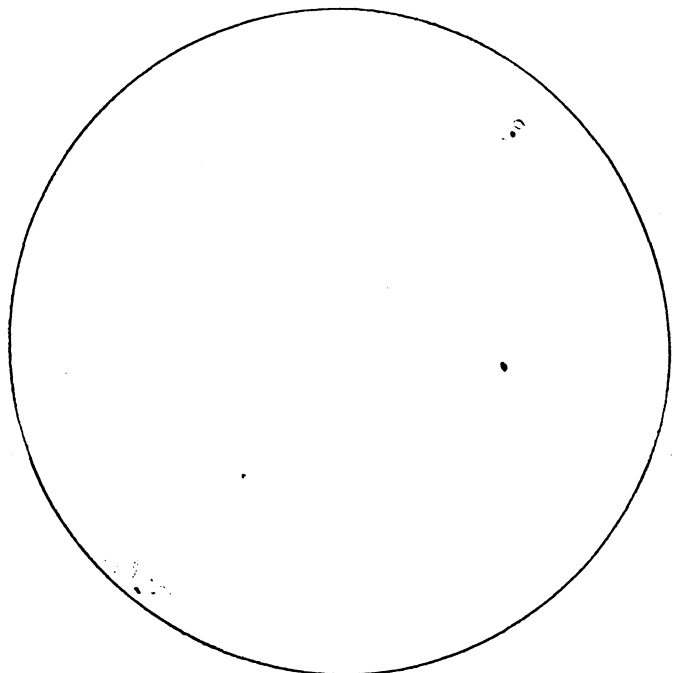
f8 $\frac{900 \text{ mm}}{25 \text{ mm}}$



AUG. 19 2:25 - 2:00 P.M. E.D.T.
 LIGHT HAZE IMPAIRED FINE DETAIL
 SEEING, STEADY. (SOMEWHAT).
 MAIN SPOT'S CONTRAST
 HIGHER THAN SHOWN.

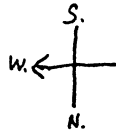


AUG. 25/89 12:30 - 12:50 P.M. E.D.T.
 SKIES CLEAR
 FACULAE EASILY OBSERVED
 NO SMALL SPOTS OBSERVED

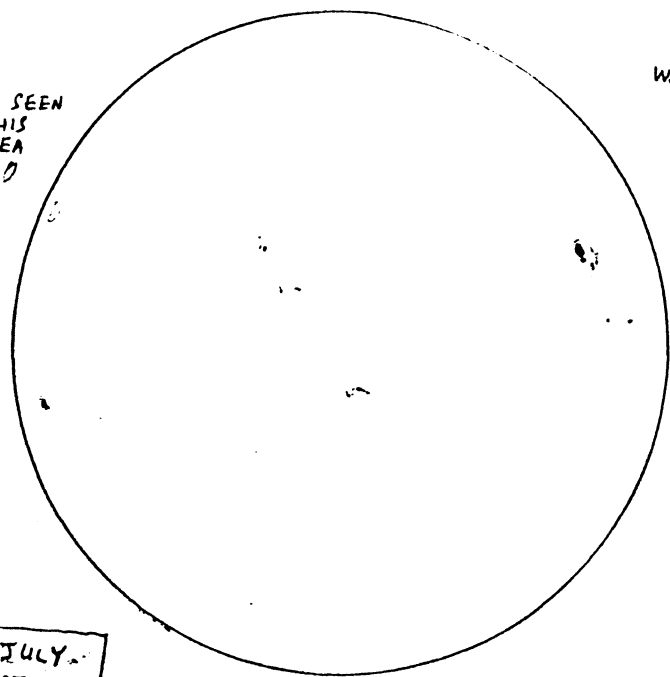


JULY 29/89 4:20-4:30 P.M.
HAZY CLOUDS E.D.T.

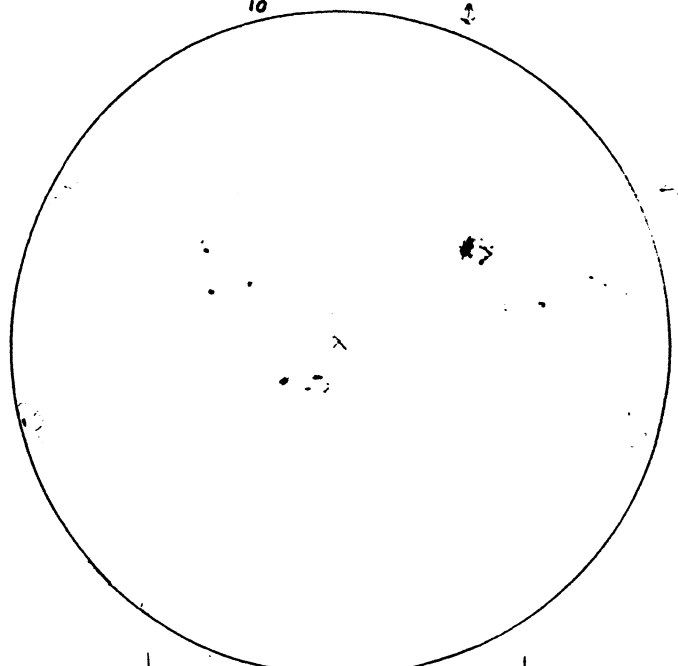
f8 $\frac{900\text{mm}}{25\text{mm}}$



T SEEN
THIS
AREA
B



JULY 30 2:30-2:45 P.M. E.D.T.
SKIES CLEAR WITH 30% CUM. CLOUDS
CALM TO VERY LIGHT BREEZE
SEEING $\frac{9}{10}$ (RIFRES SMALL)
TRANSP. $\frac{8}{10}$

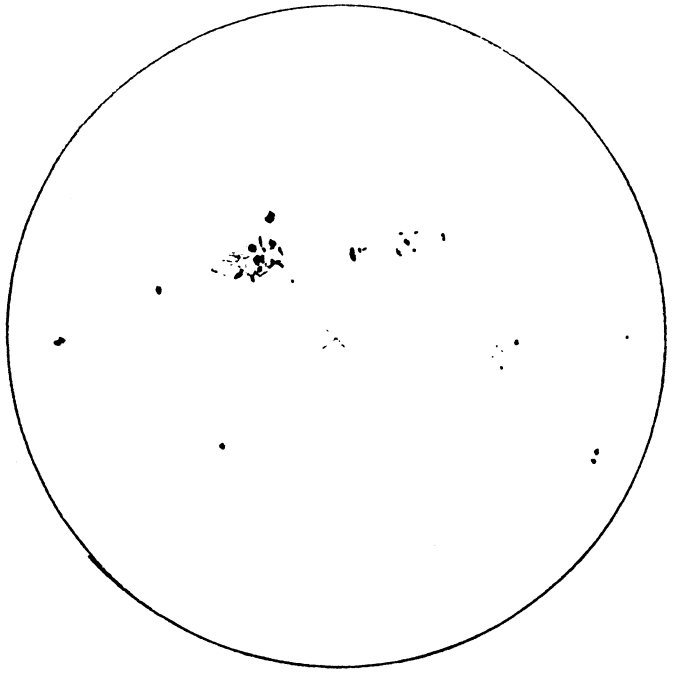
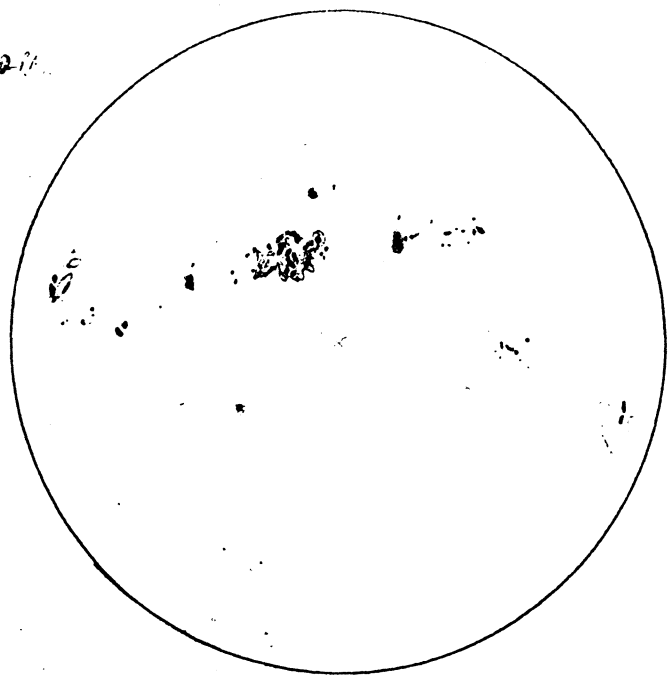


JULY
EAT-WAVE
HUMID
-31°C

AUG. 9 4:10-4:40 P.M. EDT
SKIES CLEAR IN SUN'S AREA
CALM, TO LIGHT BREEZE
TRANSP. $\frac{9}{10}$; SEEING $\frac{8}{10}$

75-GJ 7H 590 J .01 +

AUG. 10 4:20-4:45 P.M. EDT.
CUM. CLOUD BANKS
SMALL TO MED. BRANCHES MOVE IN BREEZE
HWY #9 + HOLLAND MARSH



NAKED-EYE
SPOT
4:45 P.M.

CIRCLE OF SPOTS
AROUND LAGER
SPOT

46

JUNE 30/89, 12:20-12:45 P.M. E.D.T.
 SKIES TOTALLY CLEAR
 SEEING $\frac{7}{10}$
 TRANSP. $\frac{8}{10}$

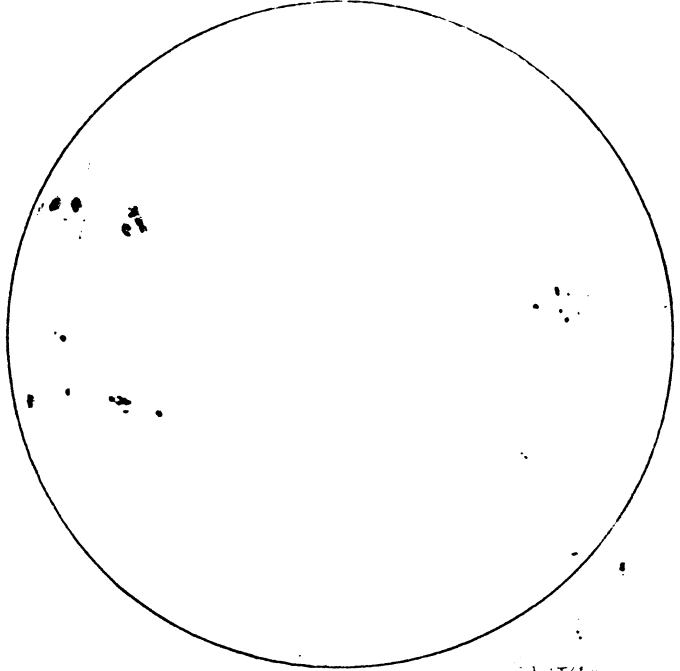
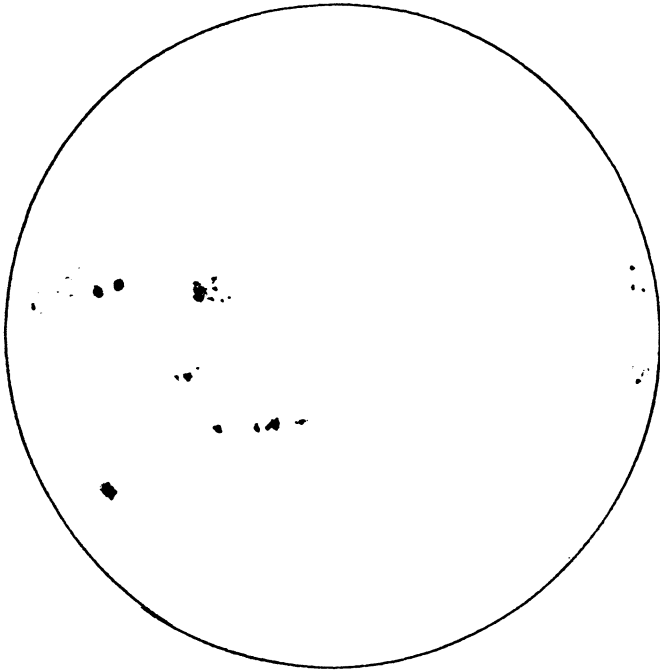
f8 $\frac{900 \text{ mm}}{25 \text{ mm}}$

JULY 1 3:50-4:15 P.M. E.D.T.

SKIES CLEAR; NO BREEZE IN
 OBSERVATORY
 PARKING LOT



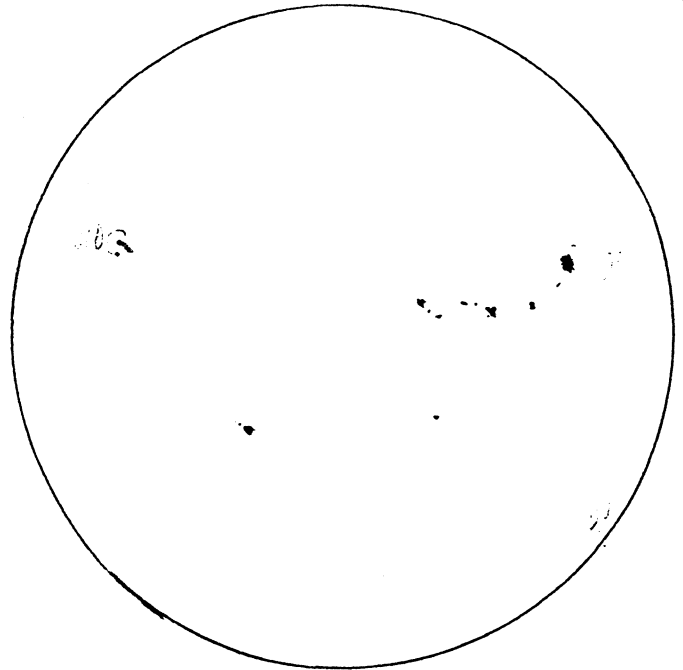
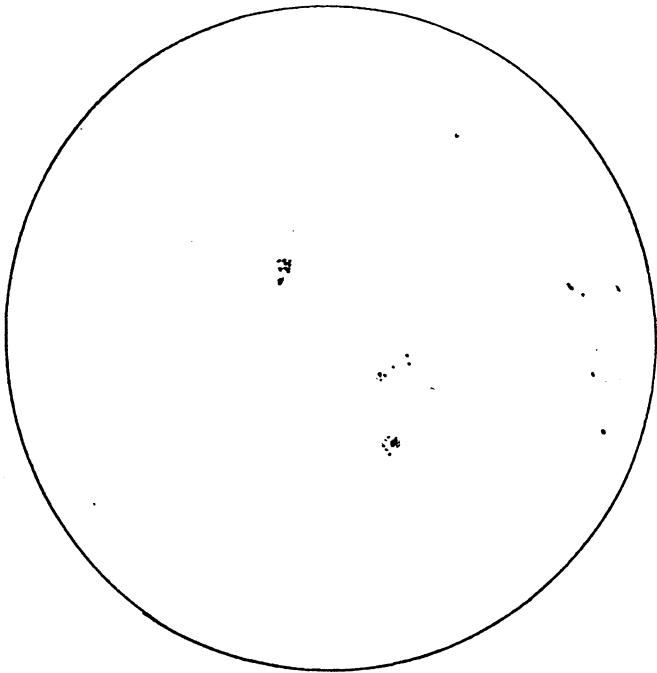
NO PENDR.
 'INSIDE'
 SPOTS



POSITION
 OF SPOT

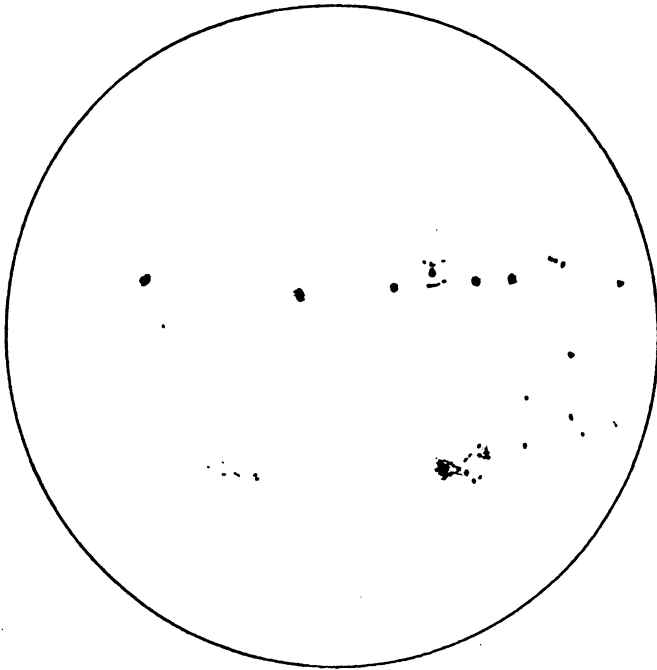
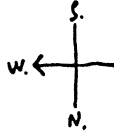
JULY 6 12:25-12:40 P.M. E.D.T.
 SKIES CLEAR, CUM. CLOUD BANK ALONG
 +27°C SOUTH + WEST HORIZON

JULY 9 3:10-3:25 E.D.T.
 SKIES CLEAR
 SEEING $\frac{6}{10}$ (MANY RIPPLES); TRANSP. $\frac{8}{10}$ (FAC.
 VERY VISIBLE)

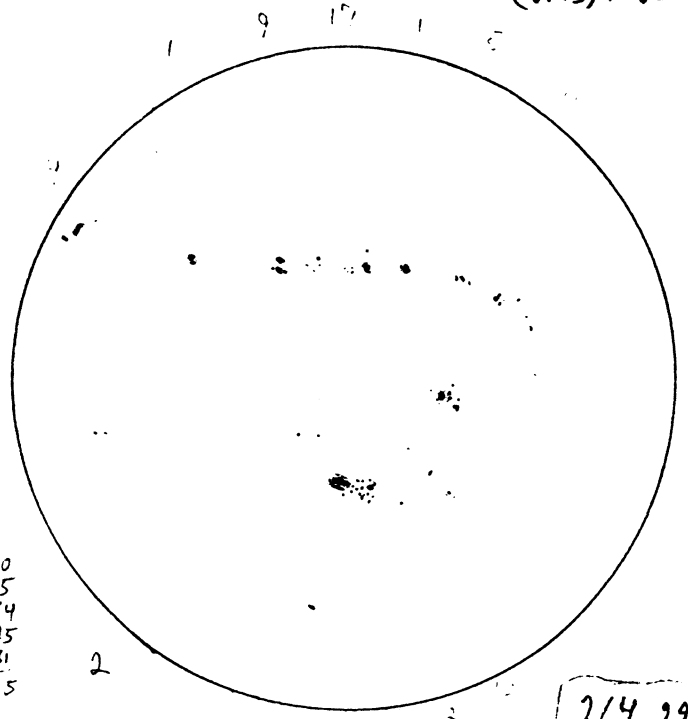


JUNE 23/89 12:30-12:50 E.D.T
 VIEWED SUN THROUGH HEAT HAZE
 SEEING $\frac{8}{10}$; DARK SPOTS VERY DARK

f8 $\frac{900\text{mm}}{25\text{mm}}$



JUNE 25 5:00-5:35 P.M.
 SKIES CLEAR WITH 20% CUM. CLOUDS
 ESTIMATED NUMBER OF SUNSPOTS (100x)
 (10x15)+115=265

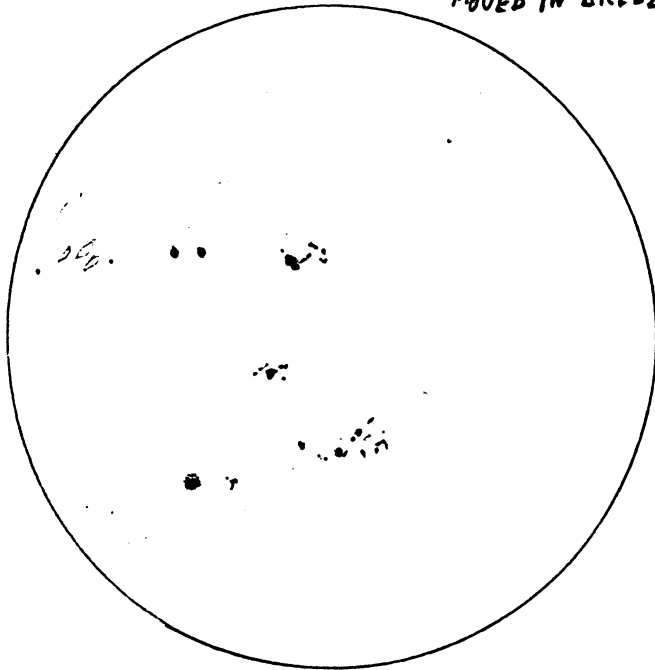


10x15=150
 25
 34
 25
 31
 265

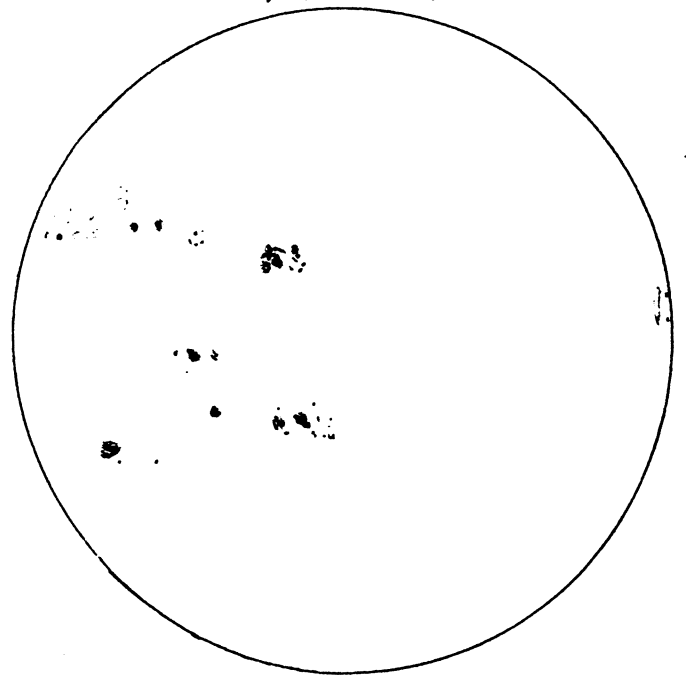
264, 297

JUNE 28 12:35-12:45 P.M. E.D.T
 RAPID DRAWING, JARRING TELESCOPE
 IMPAIRED SHARP CONTRAST
 SKIES CLEAR, MEDIUM BRANCHES
 MOVED IN BREEZE

25
 34
 25
 31
 265



JUNE 29 5:40-6:10 E.D.T
 SKIES CLEAR, SLIGHT BREEZE
 SEEING $\frac{6}{10}$ RIPPLES ALONG SUN'S LIMB
 TRANSP. $\frac{9}{10}$, VERY CLEAR IMAGE.



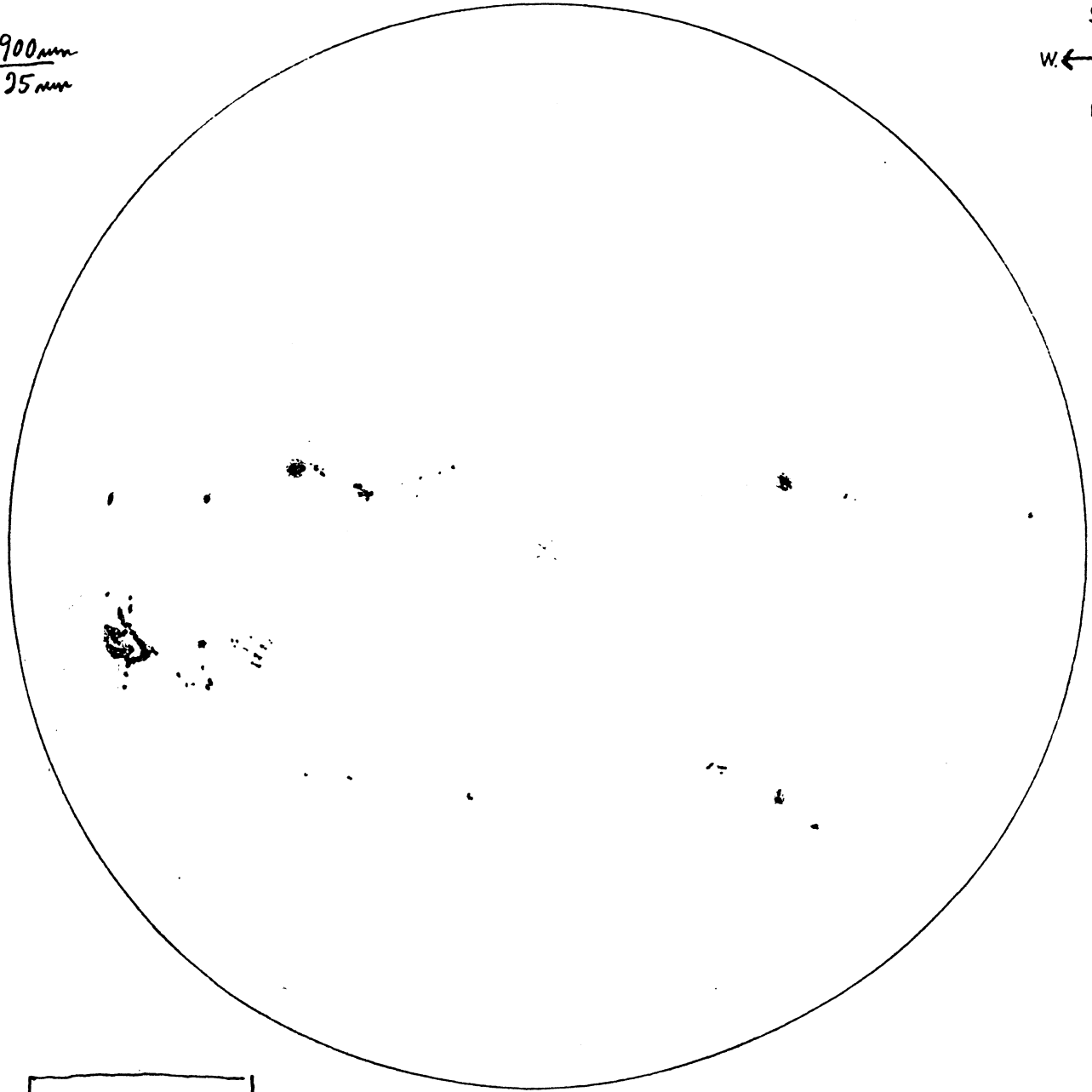
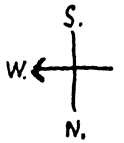
$\frac{1}{2}$ HEMISPHERE SPOTTY }
 $\frac{1}{2}$ HEMISPHERE CLEAR } ~ 12/30/88
 #34

JUNE 18 1989 2:50-3:50 P.M. E.D.T.
LIGHT CIRRUS CLOUDS IN 40% CLEAR SKIES

TRANSP. } $\frac{9}{10}$ WHEN SKIES CLEAR
SEEING } $\frac{7}{10}$

IMAGE CLARITY EQUALED MAR. 10; HINT OF 3-DIMENSIONAL VIEW
#37

f 8 $\frac{900\text{mm}}{25\text{mm}}$



(30)



4:00-4:35 P.M.

f 8 $\frac{900\text{mm}}{9\text{mm}}$

OF SUNSPOTS

10x11 = 110

+ 153

263 RELATIVE

OF SPOTS

f15

5" MARSH-CHILTON REFRACTOR

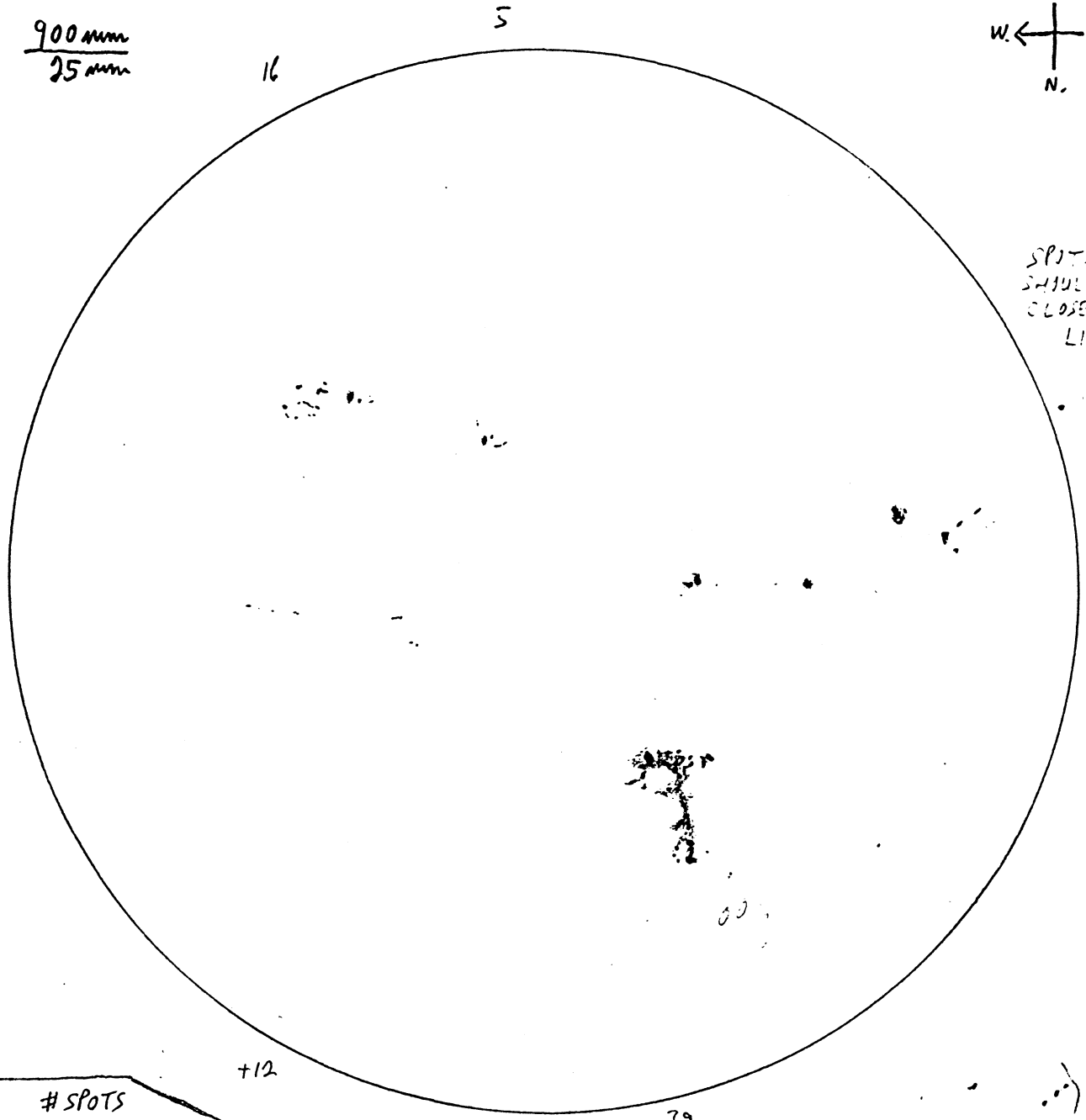
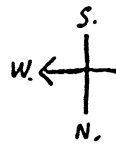
12mm

254, 216

(43)

JUNE 11/89 2:15-3:45 P.M.
 SKIES 80% CLEAR WITH WHITE CUM. CLOUDS
 SEEING $\frac{7}{10}$ IMAGE FUZZY AT TIMES
 TRANSP. $\frac{8}{10}$

f 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$



SPOTS SHOULD BE CLOSE TO LIMB

(31)

SPOTS

$10 \times 6 = 60$
 12
 39
 19
 $+ 21$
 151

4:15 P.M.
 $\frac{900 \text{ mm}}{12}$

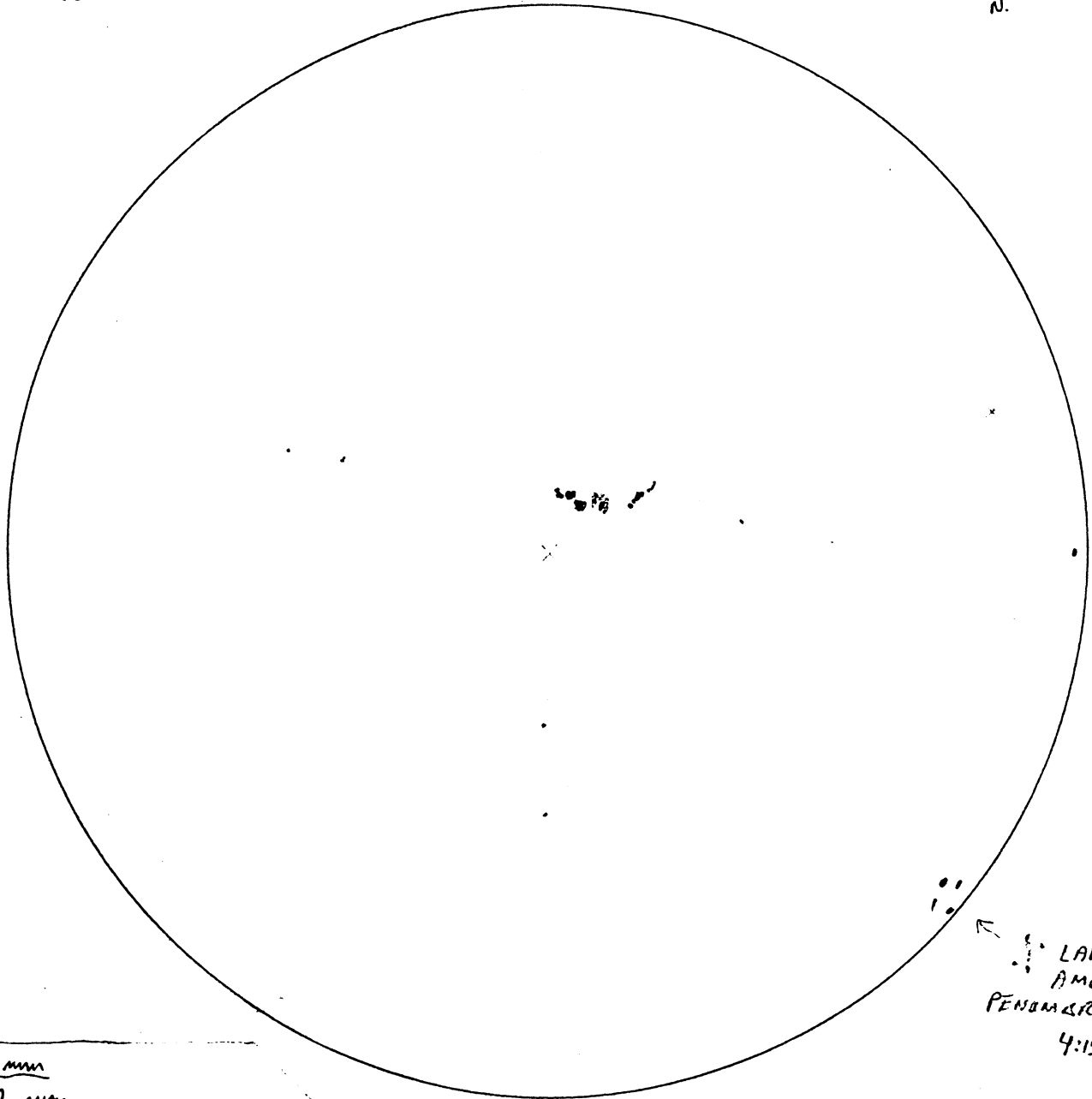
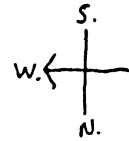
263, 203

PROPER POSITION OF SPOTS

(43)

JUNE 8/89 1:00 - 1:10 P.M. E.D.T.
IMAGE, STEADY, CLEAR
RAPID DRAWING, APPROACHING THUNDERCLOUDS

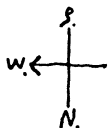
f8 $\frac{900 \text{ mm}}{25 \text{ mm}}$



30

LARGE AMOUNT OF PENUMBRA AT 75X
4:15 P.M.

f8 $\frac{900 \text{ mm}}{12 \text{ mm}}$



3:25 - 4:15 P.M. JUNE 8
THUNDERCLOUDS IN CLEAR
SKIES

FUZZY IMAGE

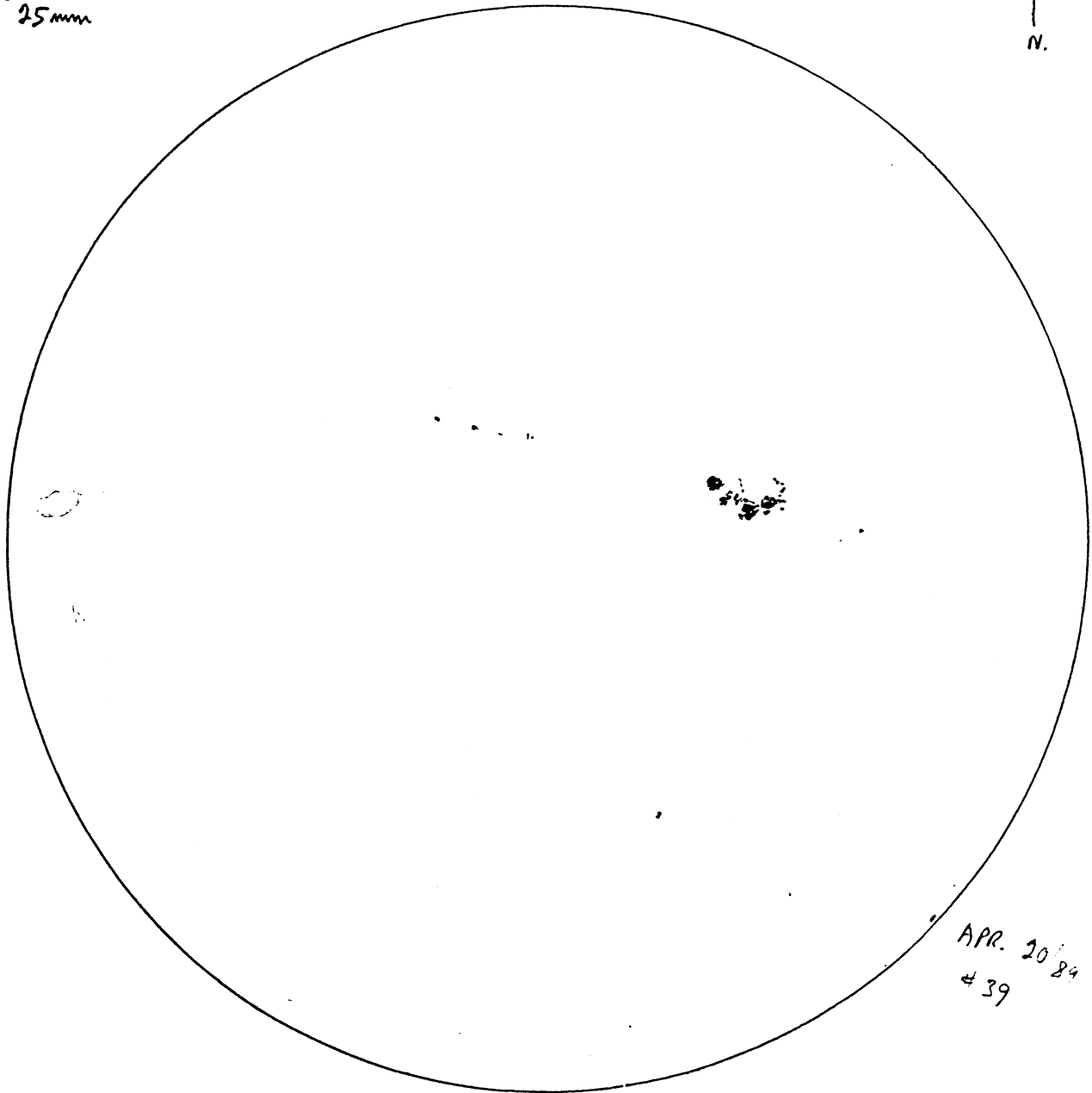
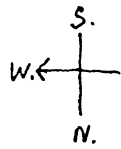
42

JUNE 7/89 5:55-6:20 P.M. E.D.T.

SKIES 50% CLEAR WITH WHITE FLUFFY CLOUD BANDS

STEADY, CLEAR IMAGE

f8 $\frac{900\text{mm}}{25\text{mm}}$



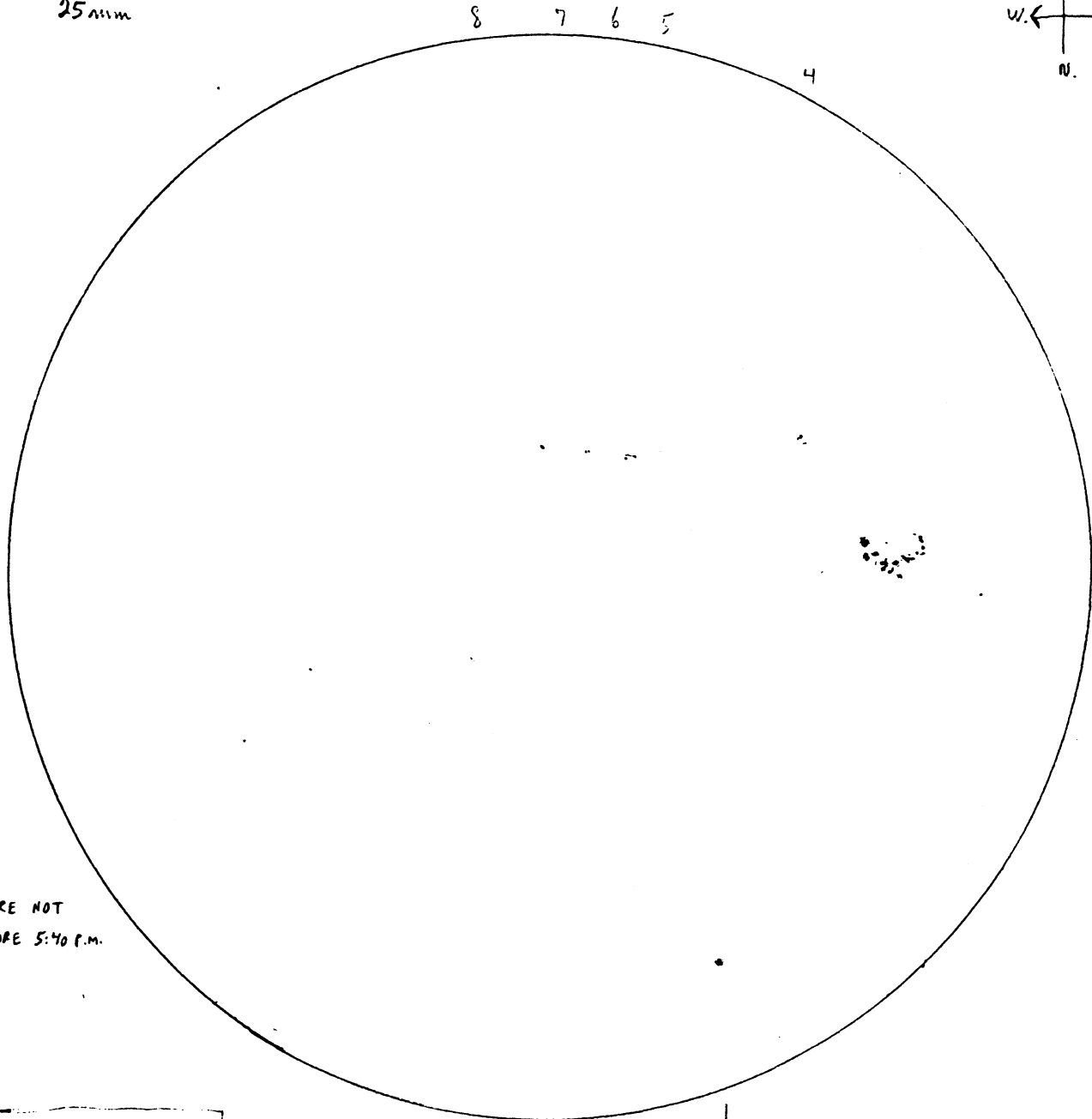
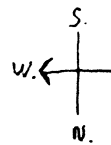
APR. 20 89
439

(29)

431

JUNE 6/89 4:05-4:35 P.M. E.D.T - 5:40
 SKIES CLEAR WITH ISOLATED WHITE CLOUDS
 SMALL TREE BRANCHES MOVE IN BREEZE
 SEEING $\frac{7}{10}$ (RIPPLES ALONG SUN'S LIMB)
 TRANSPARENCY $\frac{8}{10}$ (FACULAE VERY DISTINCTLY VISIBLE)

f8 $\frac{900mm}{25mm}$



$\frac{80}{10 \times 8 + 59}$
 139

SPOTS WERE NOT
 SEEN BEFORE 5:40 P.M.

(28)

(43)

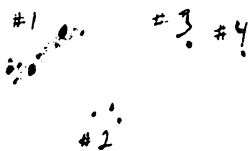
SUNSPOTS (10x8)+59
 = 139

f8 $\frac{900mm}{12mm}$

6/6 5:30 P.M.

SKY & TEL.

160, 145



METHOD USED
 (10x4)+12=52

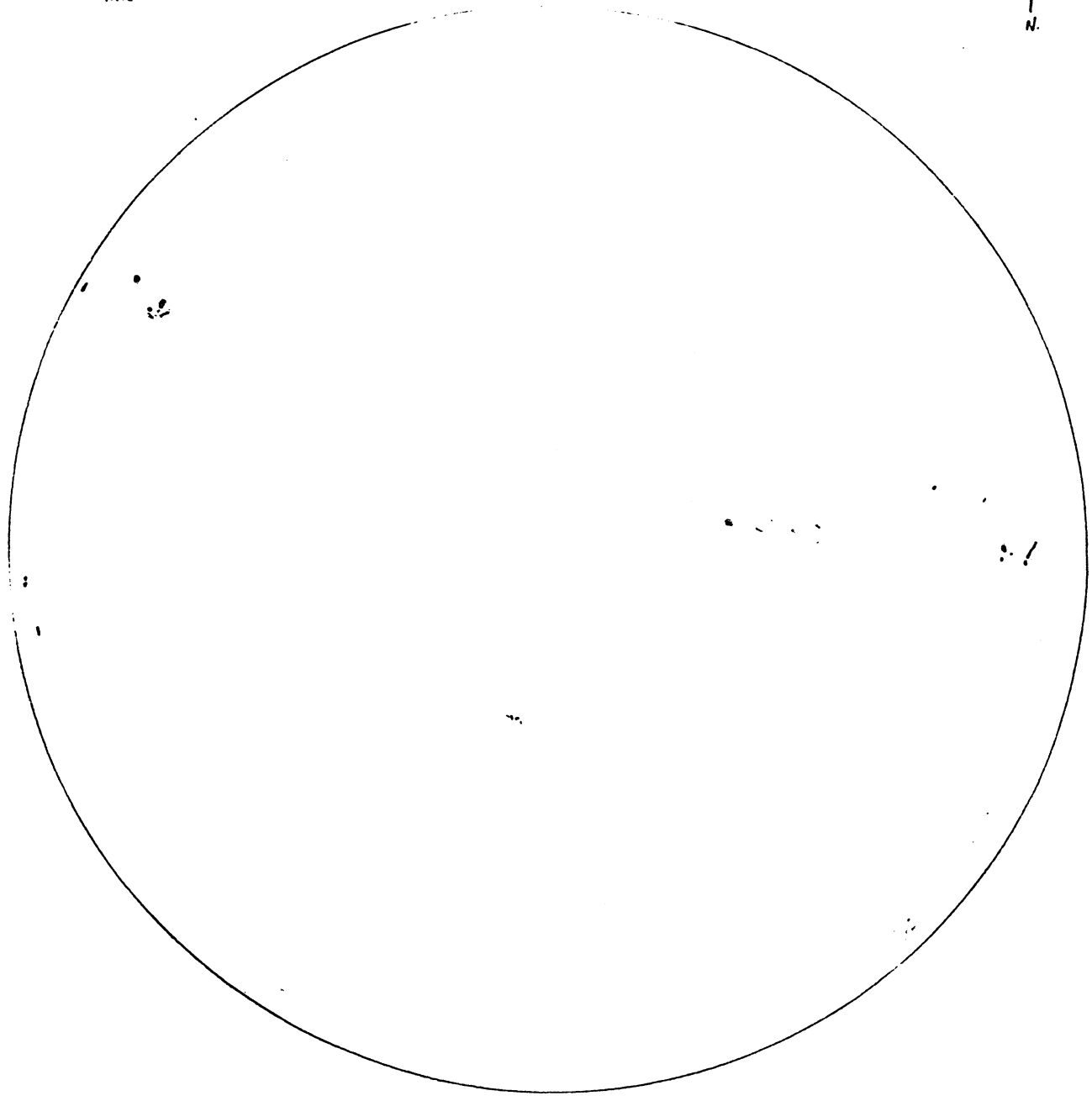
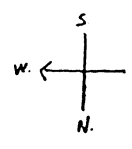


4:40-5:15 P.M.

f8 $\frac{900mm}{9mm}$

JUNE 4/89 2:25-2:45 P.M. E.O.T. - 3:15 P.M.
SKIES CLEAR TO HAZY TO CLEAR
TRANSP. $\frac{6}{10}$

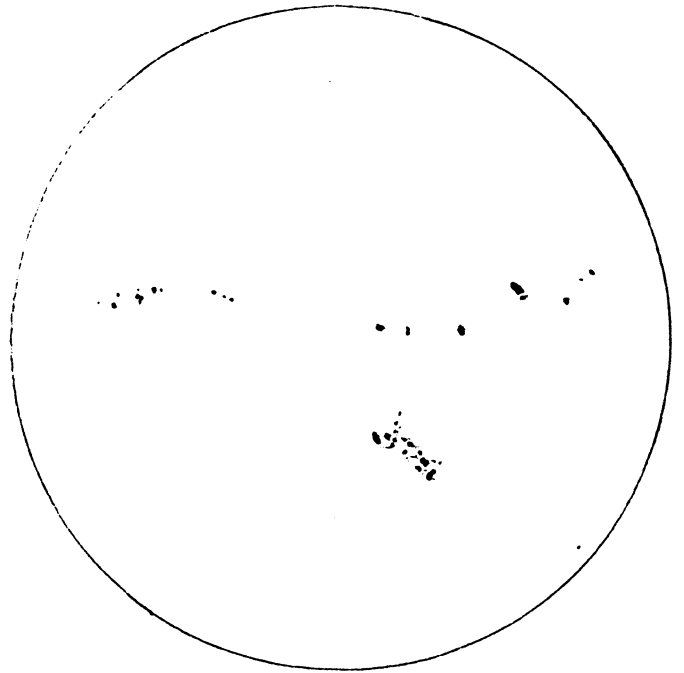
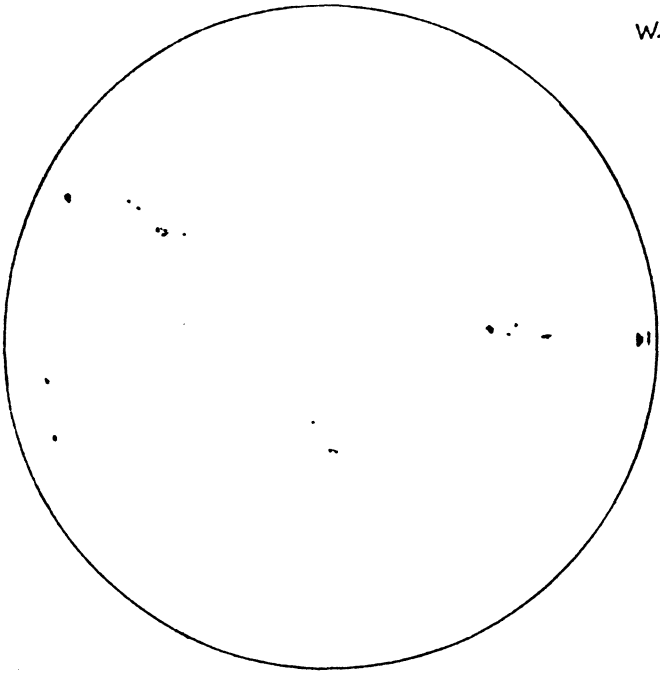
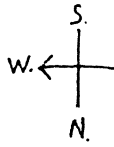
f 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$



JUNE 2/89 2:15-2:35 P.M. EDT
 RAPID DRAWING, TRANSP. $\frac{2}{10}$
 FAST MOVING, HAZY OVERCAST

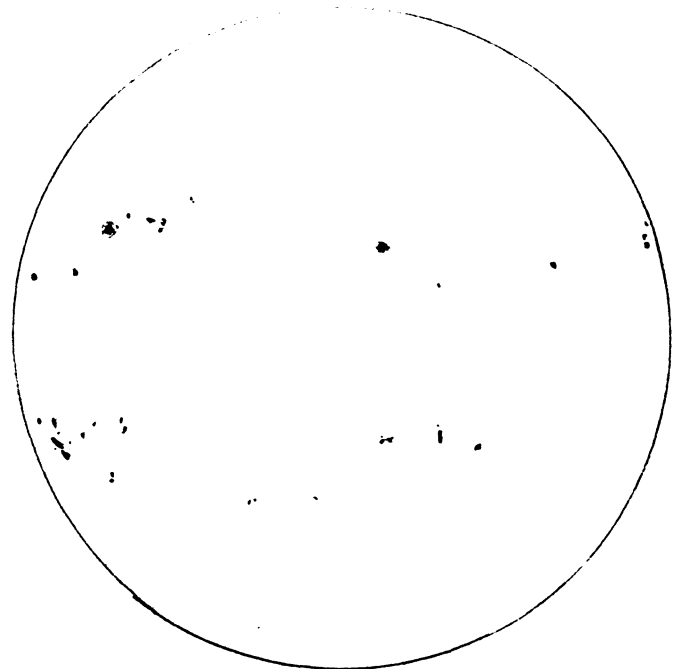
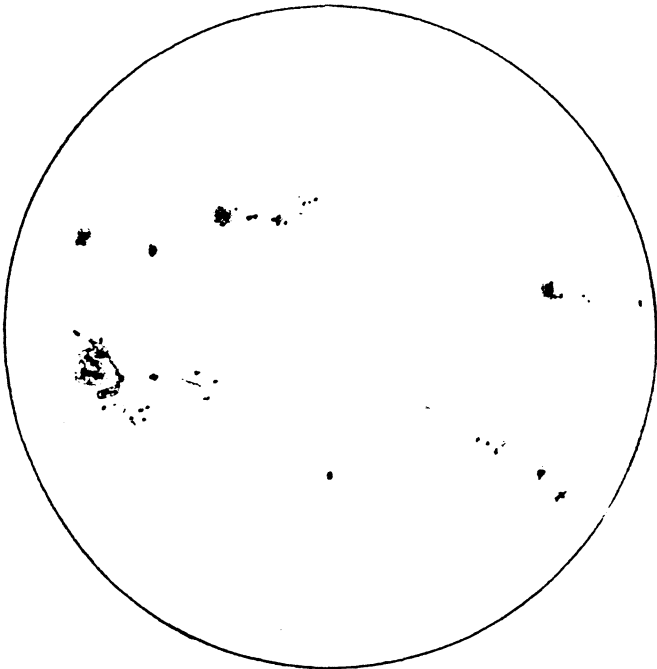
f 8 $\frac{900mm}{25mm}$

JUNE 12, 12:20-12:45^{A.M.} E.D.T.
 LIGHT HAZE
 SEEING $\frac{8}{10}$ (IMAGE STEADY)
 TRANSP. $\frac{6}{10}$



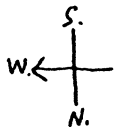
JUNE 17 2:35-2:55 P.M.; 3:05-4:00 E.D.T.
 SKIES 50% CLEAR, TURNED OVERCAST, TURNED
 SEEING $\frac{9}{10}$ WHEN CLEAR 50% CLEAR
 TRANSP. $\frac{3}{10}$

JUNE 19 12:35-12:45 E.D.T.
 CUMULONIMBUS CLOUDS MOVING IN
 FROM WEST



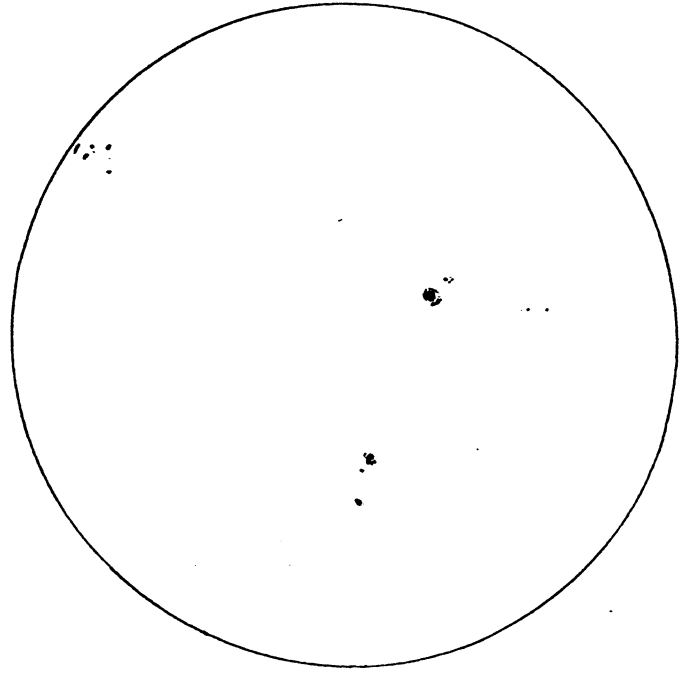
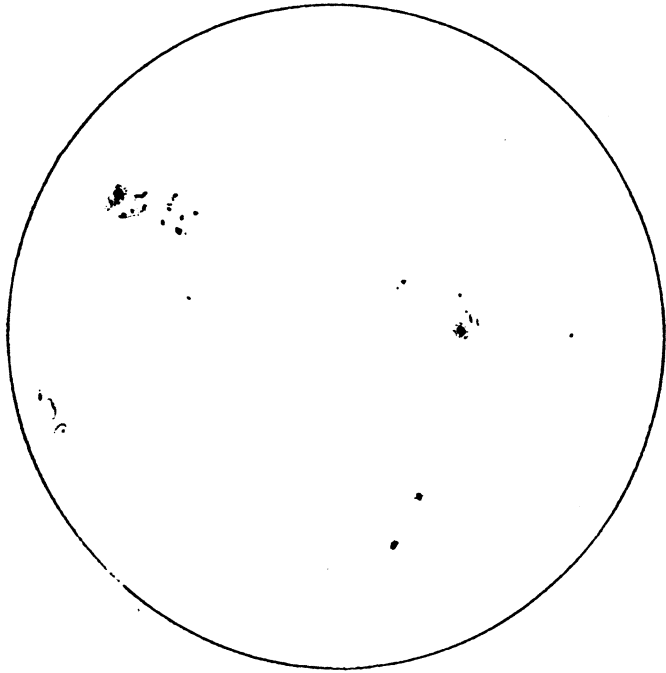
SPOTS SKETCHED RAPIDLY IN
 BETWEEN FAST MOVING CLOUDS
 (LARGE BRANCHES MOVE IN WIND)

MAY 26/89 6:15 - 6:30 P.M. E.D.T.
 SKIES CLEAR WITH WHITE CUBA CLOUDS
 MEDIUM TREE BRANCHE MOVE IN WIND



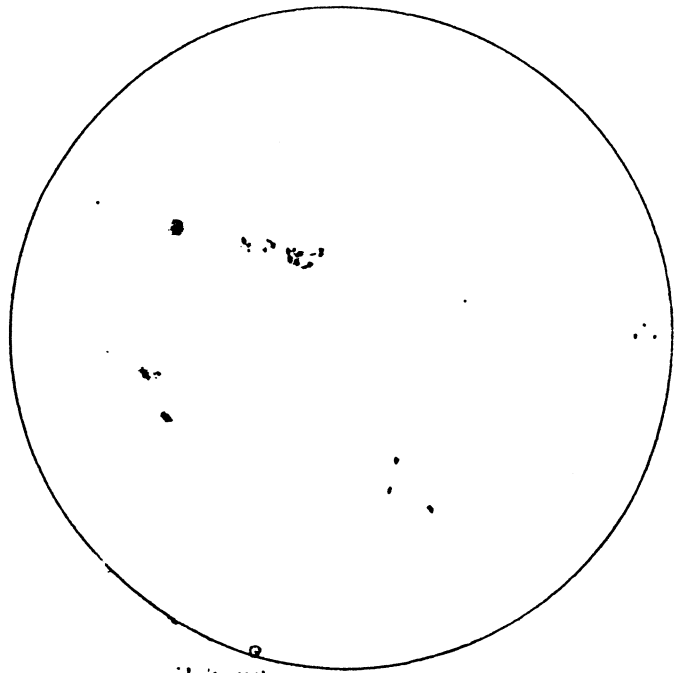
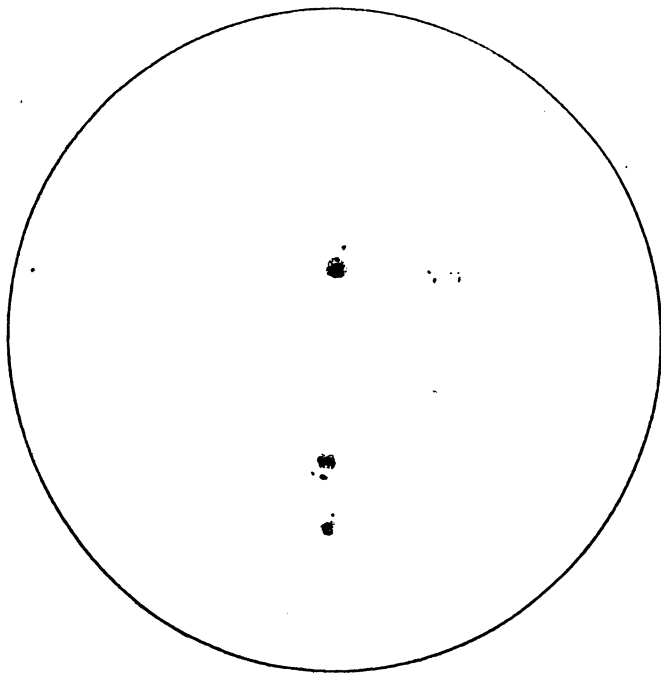
f 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$

MAY 28 2:40 - 2:55 P.M. E.D.T.
 SEEING $\frac{6}{10}$ FUZZY IMAGES
 TRANSP. $\frac{7}{10}$ GRAINY STRUCTURE
 SKIES CLEAR GLIMPSED



MAY 29 12:30 - 12:45 P.M. E.D.T.
 SEEING $\frac{7}{10}$ RIPPLES; TRANSP. $\frac{7}{10}$
 THIN HAZY CIRRUS CLOUDS

JUNE 1 5:40 - 6:15 P.M. E.D.T.
 80% CLOUDS IN CLEAR SKY
 SEEING WHEN CLEAR $\frac{9}{10}$ VERY STEADY
 TRANSP. $\frac{8}{10}$

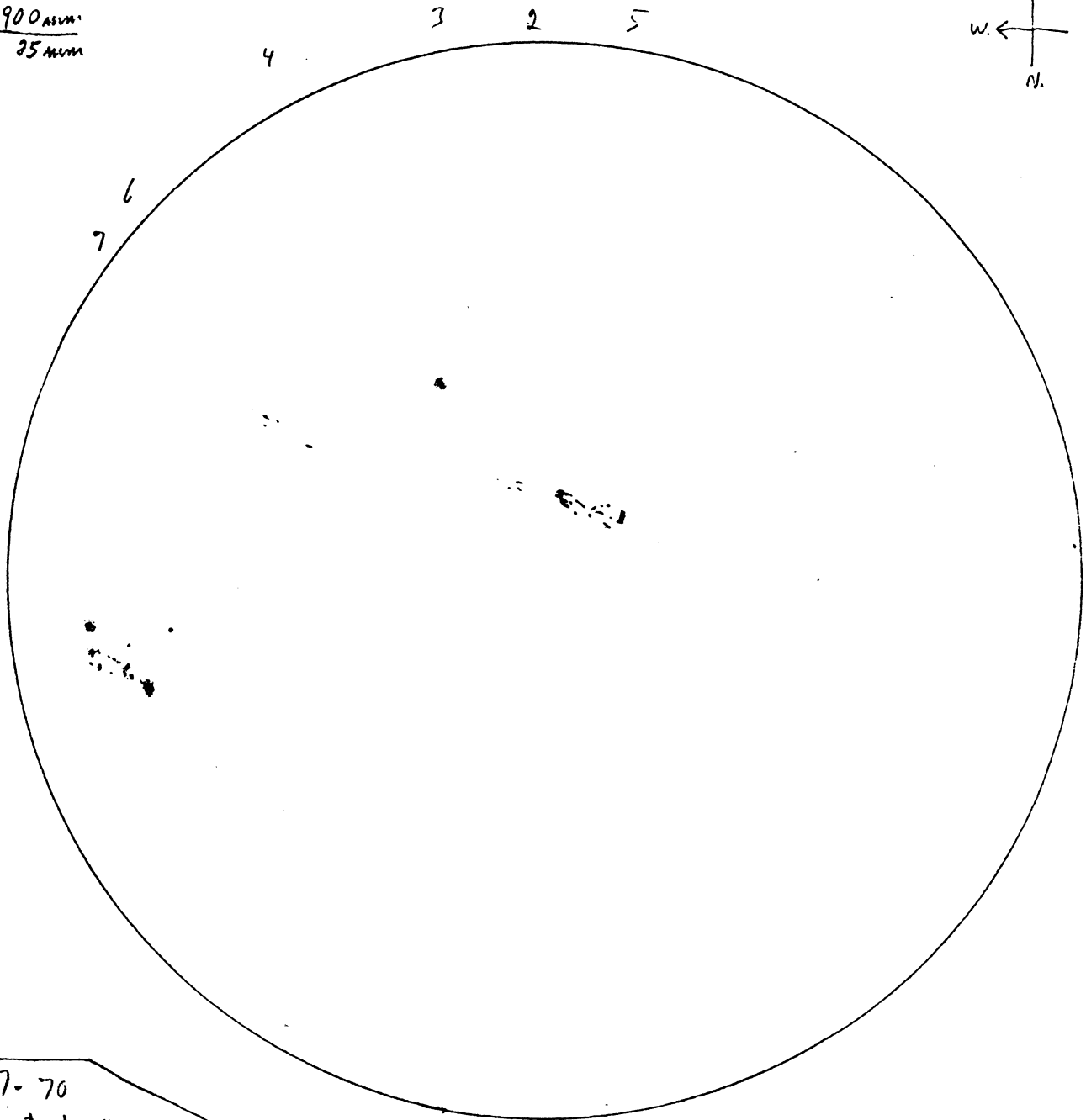
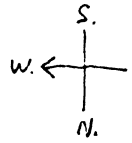


↑ ↓
 LARGE AMOUNT OF DETAIL LOST
 BECAUSE OF SMALL SCALE (47)

MAY 22/89 3:15 - 3:55 PM E.O.T.

THIN CLOUD STREAKS IN CLEAR SKIES
TRANS. $\frac{9}{10}$ (WHEN CLEAR)
SEEING $\frac{6}{10}$ IMAGE WAS FUZZY AT TIMES

f8 $\frac{900 \text{mm}}{25 \text{mm}}$



(26)

10x7-70

+ 1 ①
8 ②
1 ③
6 ④
27 ⑤
1 ⑥
26 ⑦

140

f8 $\frac{900 \text{mm}}{12 \text{mm}}$

177, 156

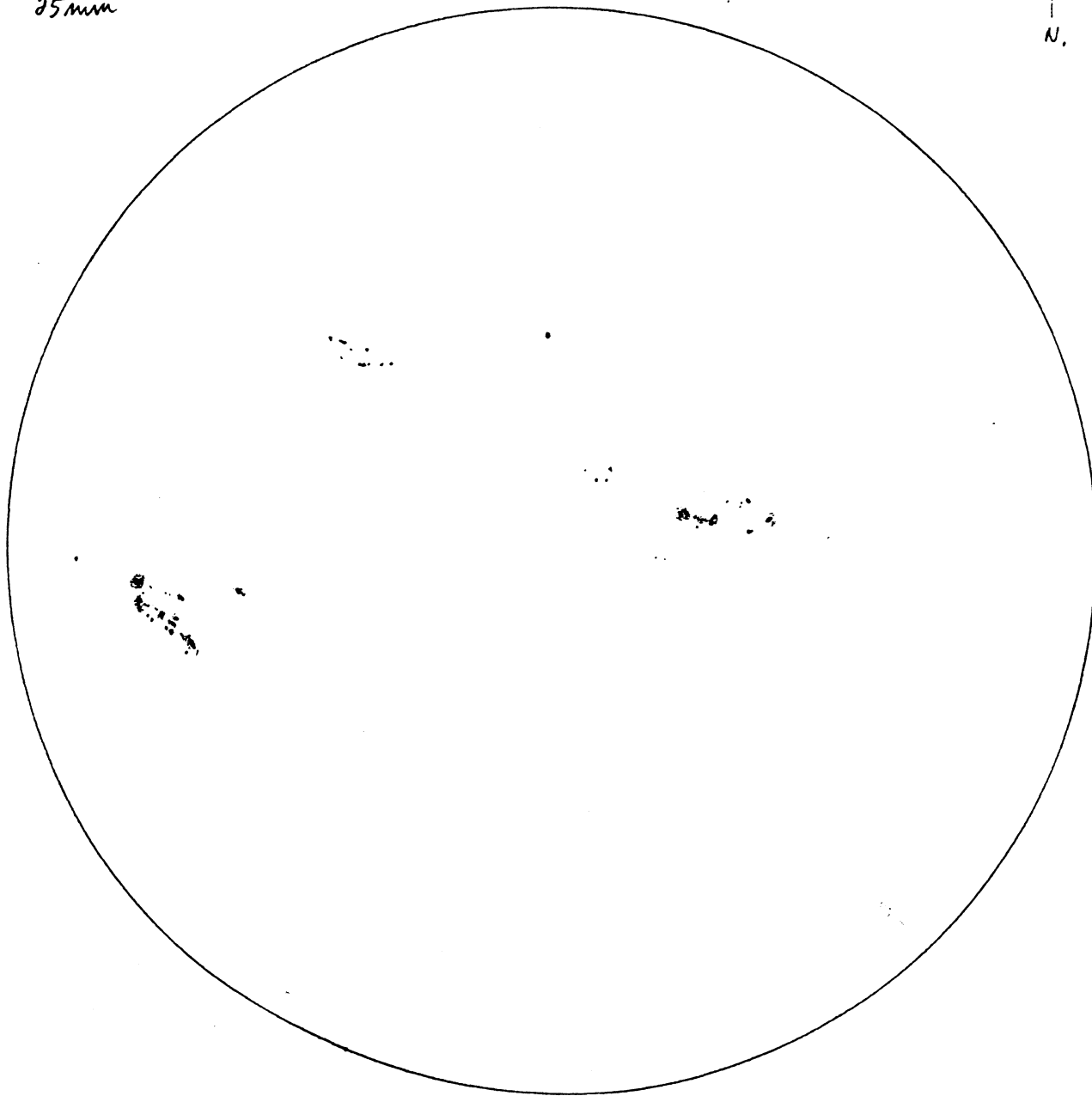
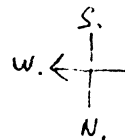
(41)

MAY 21/89 5:00 - 6:00 P.M. E.D.T.

SKIES CLEAR WITH FAST MOVING CLOUDS
TRANSP. $\frac{9}{10}$; SEEING $\frac{8}{16}$

GRAINY STRUCTURE DISTINCTLY GLIMPSED

f 8 $\frac{900\text{mm}}{25\text{mm}}$



410	399	6
125	33	100
55	22	100
	11	100
	11	100

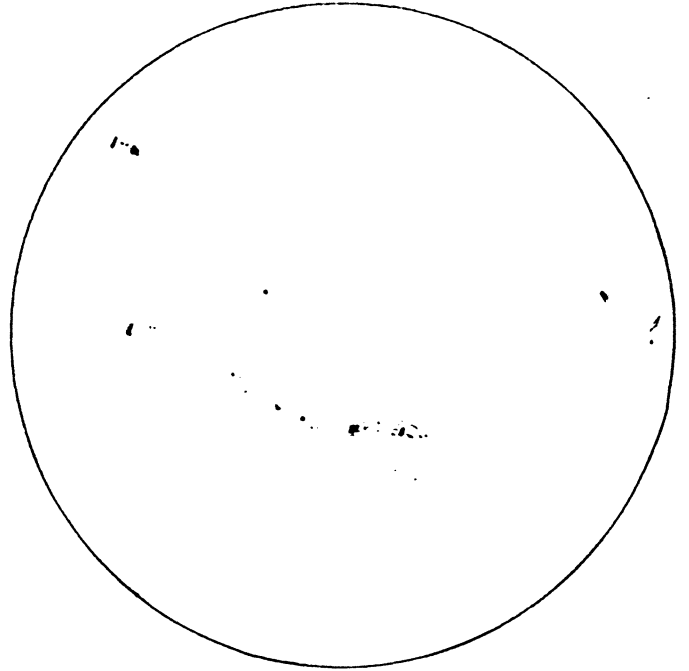
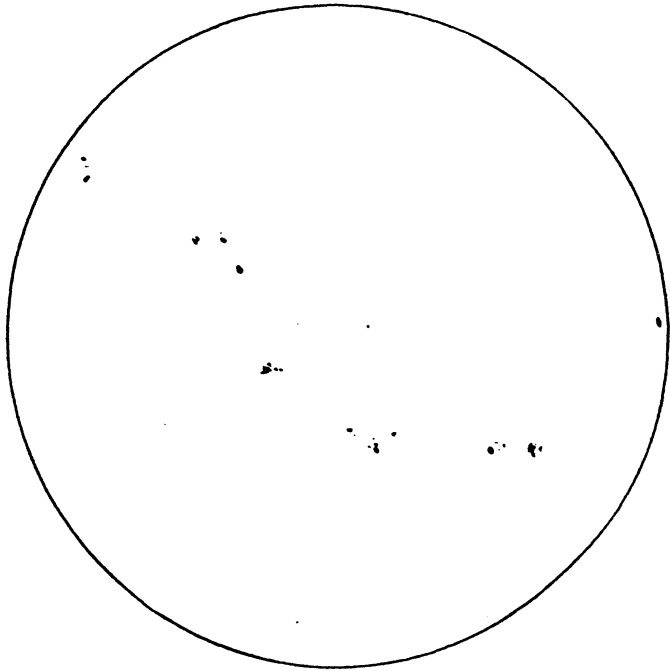
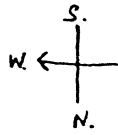
25

41

MAY 15/89 12:25-12:55 P.M. EDT
 THIN HAZE IN CLEAR SKIES
 TRANSP. $\frac{8}{10}$, SEEING $\frac{6}{10}$. VERY LIGHT BREEZE

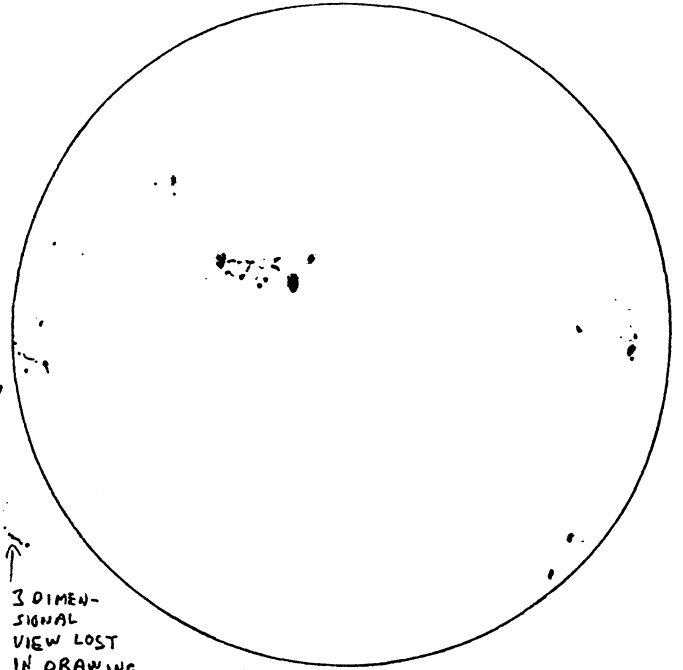
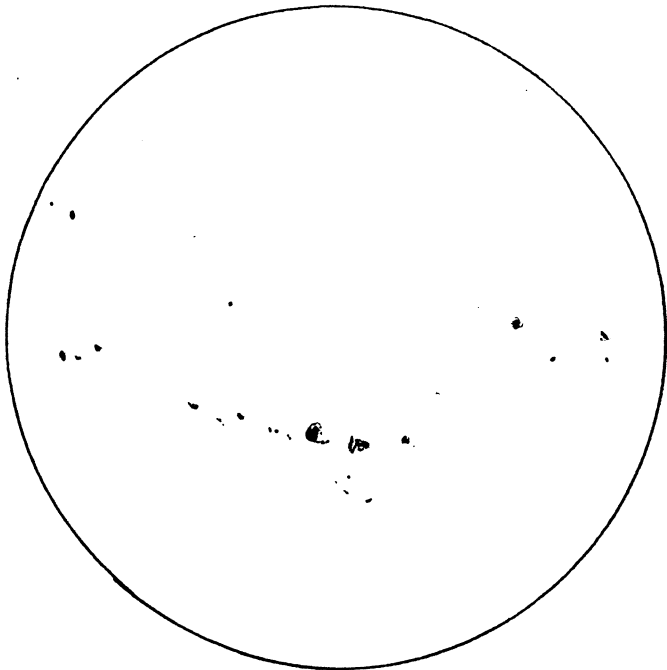
f8 900 mm
 25mm

MAY 17 12:30-12:50 P.M. EDT.
 SKIES CLEAR IN SUN'S AREA
 TRANSP. $\frac{9}{10}$; SEEING $\frac{8}{10}$ (STEADY IMAGE)
 (GRAINY STRUCTURE GLIMPSED REPEATEDLY)



MAY 18 12:25-12:50 E.D.T.
 LIGHT HAZY OVERCAST
 SEEING $\frac{8}{10}$ (STEADY IMAGE); TRANSP. $\frac{7}{10}$

MAY 24 12:25-12:50 P.M. EDT
 TRANSP. $\frac{8}{10}$; SEEING $\frac{7}{10}$
 SKIES CLEAR IN SUN'S AREA



JUNE 7
 #43:29

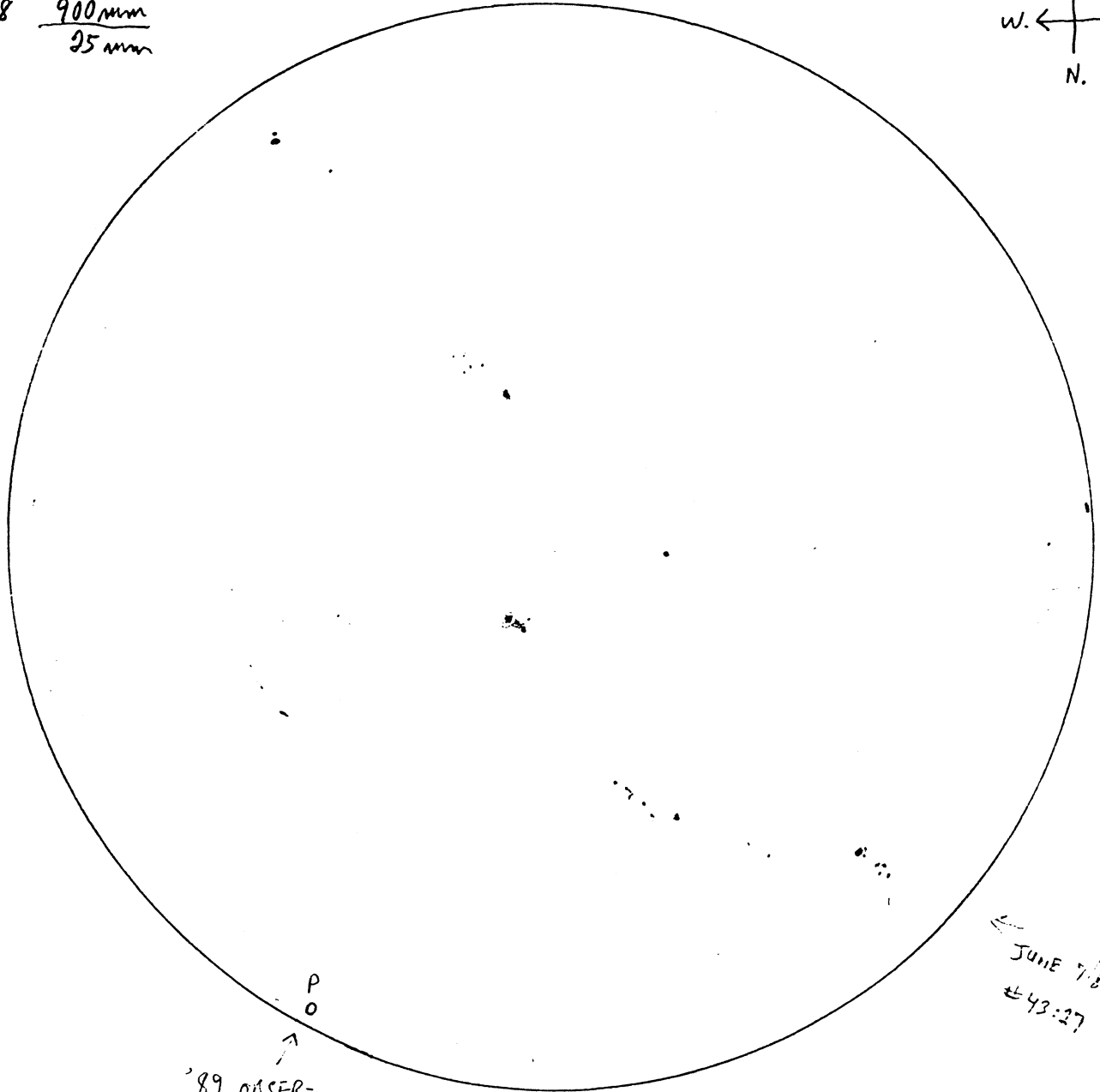
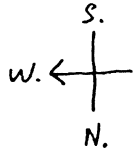
↑
 3 DIMEN-
 SIONAL
 VIEW LOST
 IN DRAWING

↑ HAS F 13% INCREASE
 , 150%

MAY 14/89 3:20 → 4:20 E.D.T.

LARGE DARK CUMULOUS CLOUDS
IN CLEAR SKIES
SEEING $\frac{4}{10}$ (MANY SMALL RIPPLES, "FUZZY" SPOTS)
TRANSP. $\frac{7}{10}$, (LARGE AMOUNT OF FACULAE)

f 8 $\frac{900\text{mm}}{25\text{mm}}$



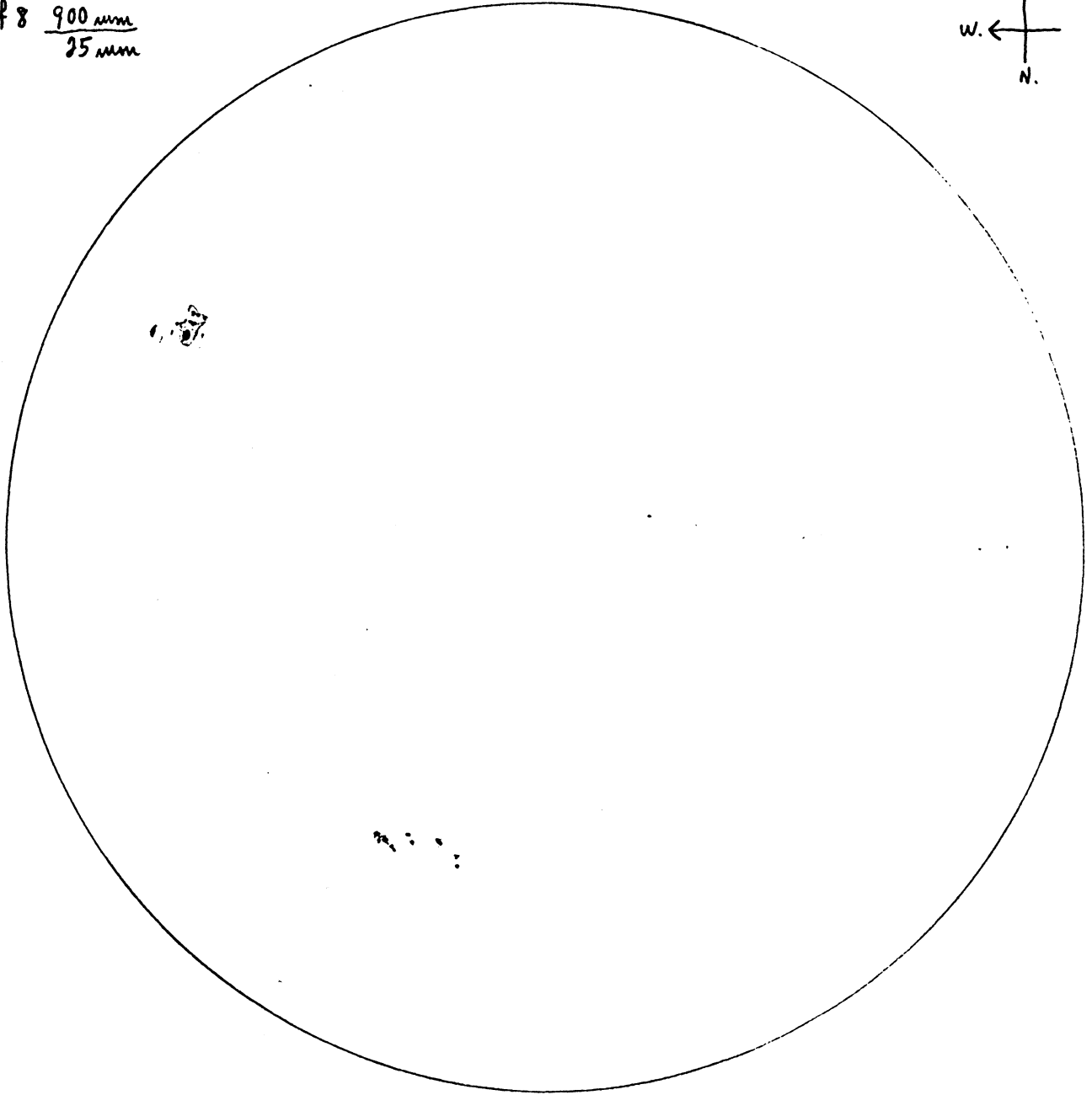
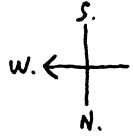
← JUNE 7/81
± 43:27

↑
'89 OBSER-
VER'S HANDBOOK
pg. 58, 57

MAY 6/89 12:-12:30 P.M. E.D.T.
N.F.C.A.A.A.

WISPY HAZY CLOUDS IN CLEAR SKIES
SMALL BRANCHES MOVE IN BREEZE
VIBRATING TELESCOPE DEGRADED CONTRAST

f 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$

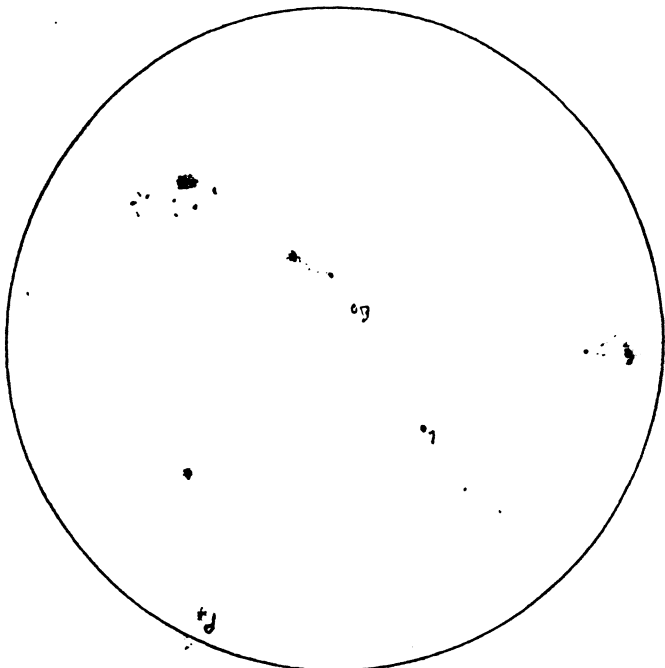
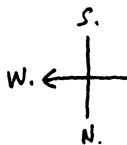


(23)

(40)

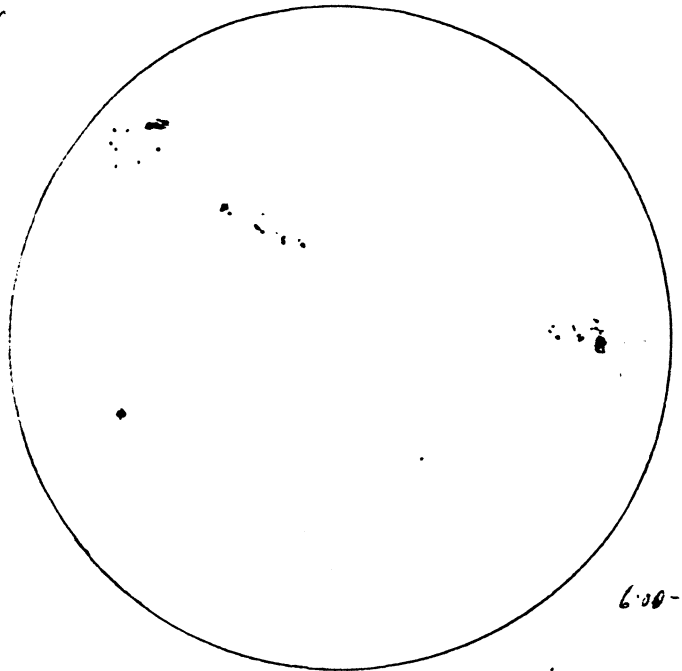
APR. 26/89 7:05 → 7:15 → 7:30 P.M. E.D.T.
 SUN SETTING INTO STRATUS CLOUDS
 SEEING $\frac{5}{10}$; TRANSP. $\frac{4}{10} \rightarrow \frac{6}{10} \rightarrow \frac{2}{10}$

f 8 $\frac{900mm}{25mm}$



75.4 3005 ONVH-590

APR. 27 5:30-6:00 P.M. E.D.T.
 SKIES TURNED CLEAR AFTER
 SLIGHT BREEZE OVERCAST
 VERY SMALL BRANCHES MOVE
 TRANSP. $\frac{8}{10}$; SEEING $\frac{6}{10}$



6:00-6:10

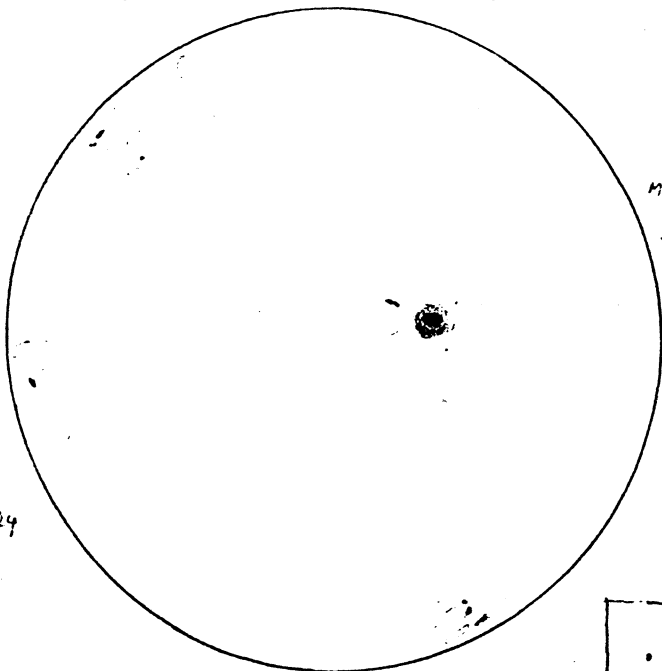
7.10-

APR 30 4:00-4:30 P.M. E.D.T.
 HAZY CUM. CLOUDS, SLIGHT BREEZE
 TRANSP. (WHEN CLEAR) $\frac{2}{10}$, SEEING $\frac{2}{10}$ (RIPPLES)
 GRAINY STRUCTURE VERY APPARENT

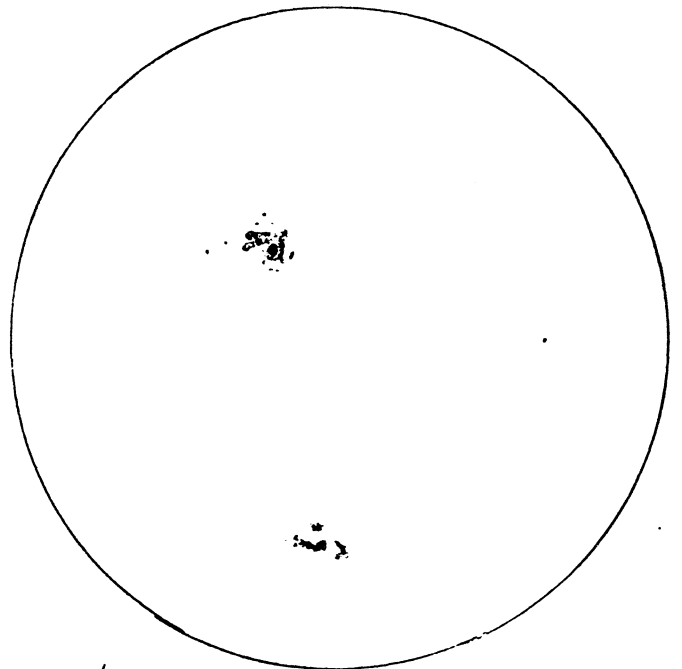
7.02
 6.02

MAY 4 12:35-12:50 P.M. E.D.T.
 SKIES CLEAR, LIGHT BREEZE
 TRANSP. $\frac{9}{10}$; SEEING $\frac{8}{10}$

$\frac{900mm}{12mm}$



MAIN SPOT
 TOO BIG
 1-23%



5/4
 5:40-6:15 P.M. E.D.T.

f 8 $\frac{900mm}{12mm}$

CLEAR SKIES
 TURNED HAZY

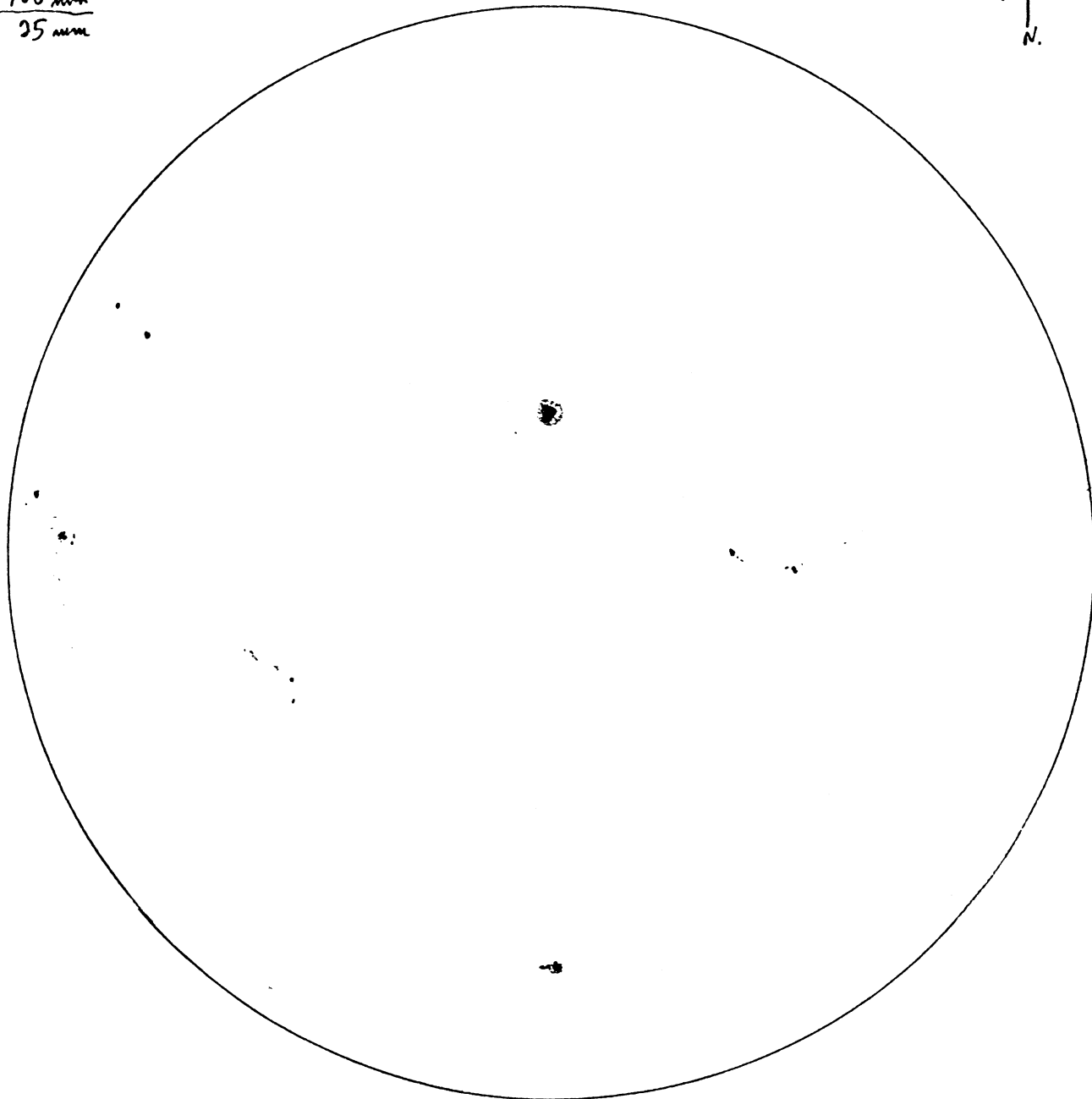
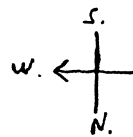
(40)

APR. 23/89 4:20 P.M. - 4:40 P.M. E.D.T.

SKIES CLEAR ; TRANSP. $\frac{8}{10}$; SEEING $\frac{6}{10}$ (RIPPLES ALONG LIMB)

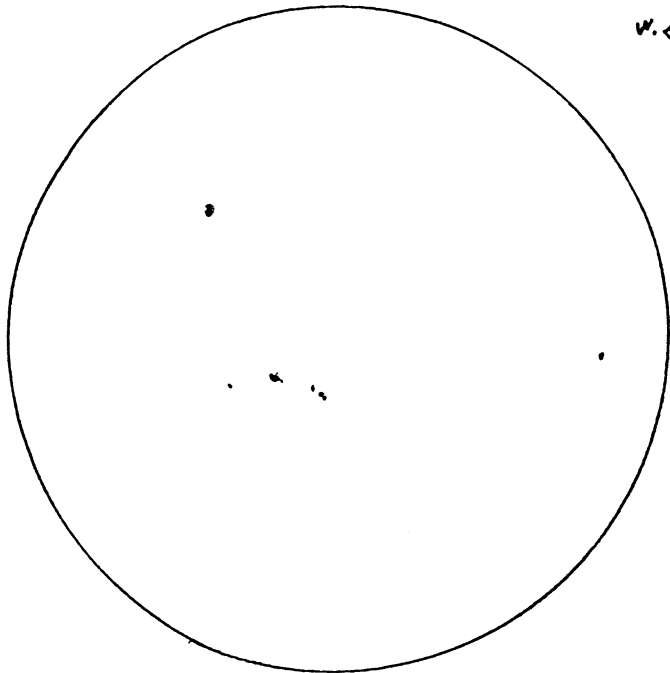
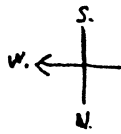
VERY SLIGHT BREEZE

f 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$

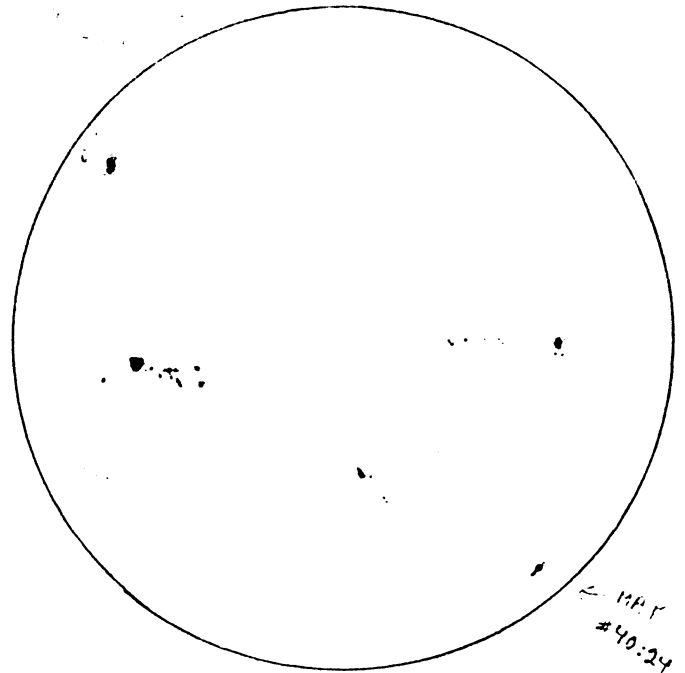


APR 18/89 12:25 E.D.T.
SKIES HAZY
TRANSP. $\frac{2}{10}$

f8 $\frac{900 \text{ mm}}{25 \text{ mm}}$

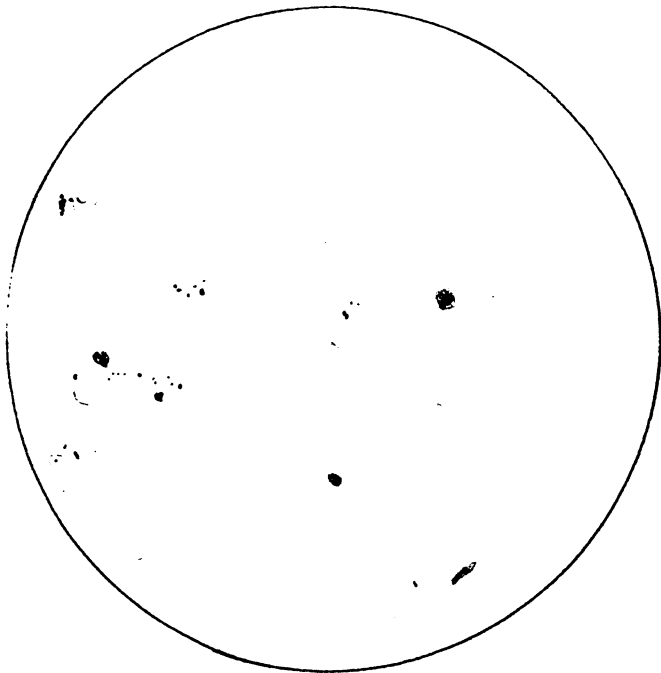


APR. 20 12:30-12:50 E.D.T.
SKIES 50%-80% CLEAR
TRANSP. $\frac{8}{10}$ VERY CLEAR WHEN STEADY
< MEDIUM BRANCHES SWAY IN WIND

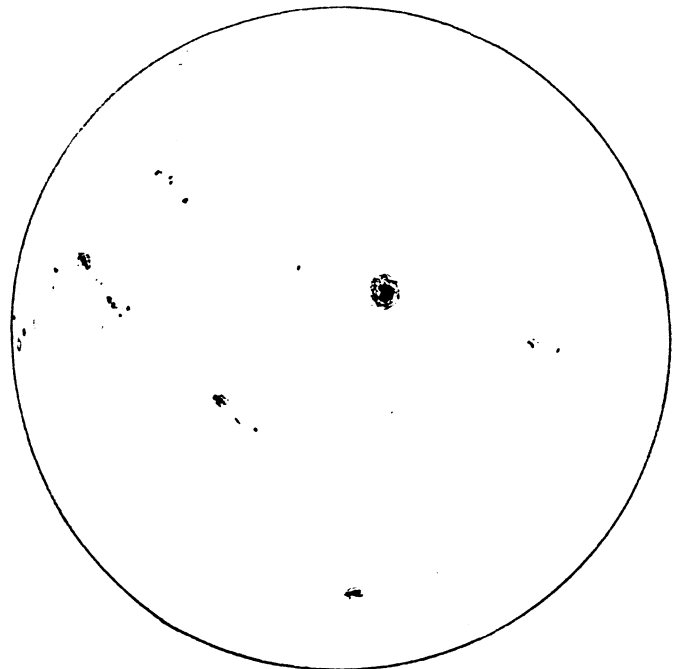


← MAY 11
#40:24

APRIL 21/89 12:20-12:40 EDT.
SMALL BRANCHES MOVE IN BREEZE
SKIES CLEAR ; TRANSP. $\frac{9}{10}$; SEEING $\frac{7}{10}$



APR. 22/89 4:40-5.00 P.M. E.D.T.
VERY SLIGHT BREEZE ; SKIES CLEAR
TRANSP. $\frac{9}{10}$; SEEING $\frac{7}{10}$; RIPPLES ALONG SOLAR LIMB



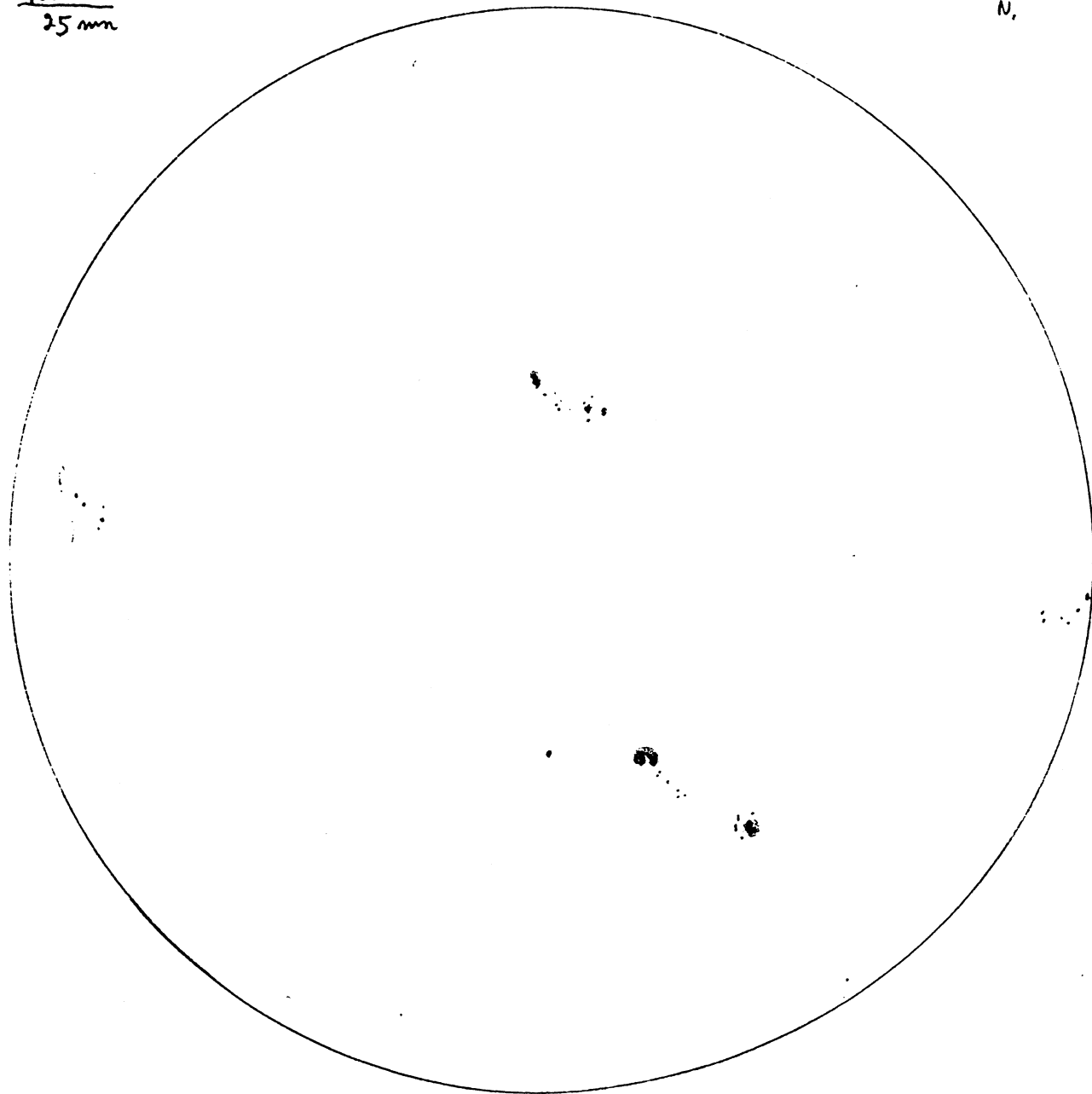
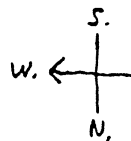
EXCEPTIONAL TRANSPARENCY
GRAIN AS DISTINCT AS FACULAE
TELESCOPE VIBRATING IN BREEZE
DEGRADED CONTRAST OF IMAGE

EXCEPTIONAL TRANSPARENCY

APRIL 16/89 2:35 - 4:00 P.M. E.D.T.

SKIES 60% CLEAR WITH WHITE CLOUD PATCHES
SLIGHT BREEZE
GRAIN EASILY SEEN ACROSS ENTIRE SOLAR DISK
IMAGE VERY STEADY

f8 $\frac{900\text{mm}}{25\text{mm}}$



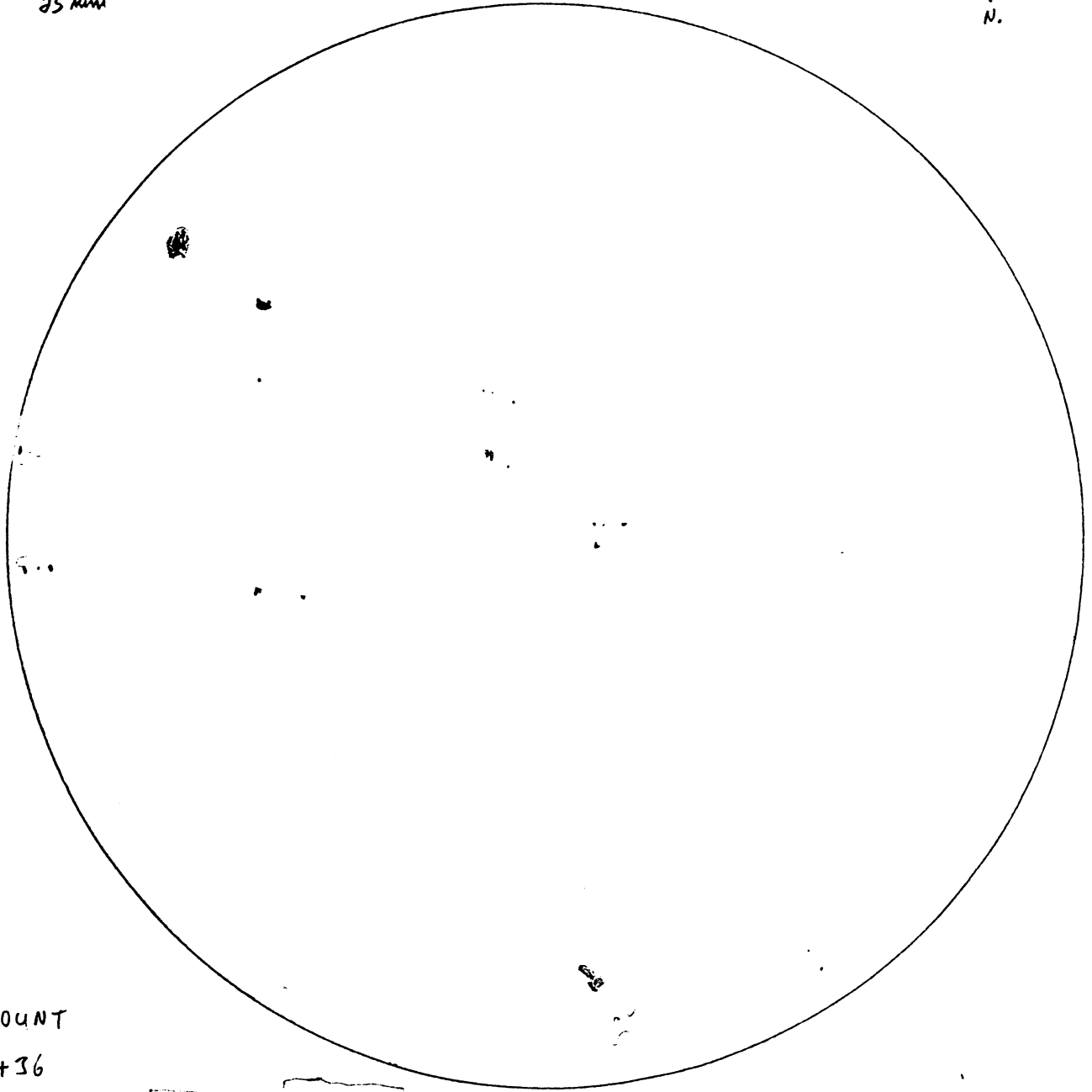
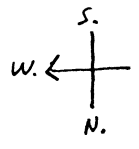
(21)

38

APRIL 8/89 12:10-12:45 E.D.T.

VERY THIN HAZE IN BETWEEN DARK CUM. CLOUDS
SEEING $\frac{2}{5}$ (BLURRY); TRANSP. $\frac{5}{10}$

f 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$



(20)

SPOT COUNT
 $(7 \times 10) + 36$
= 106
METHOD A

AUSSO
146

GRUSSELE
139

METHOD A
3/14/89
 $(7 \times 10) + 16 = 86$

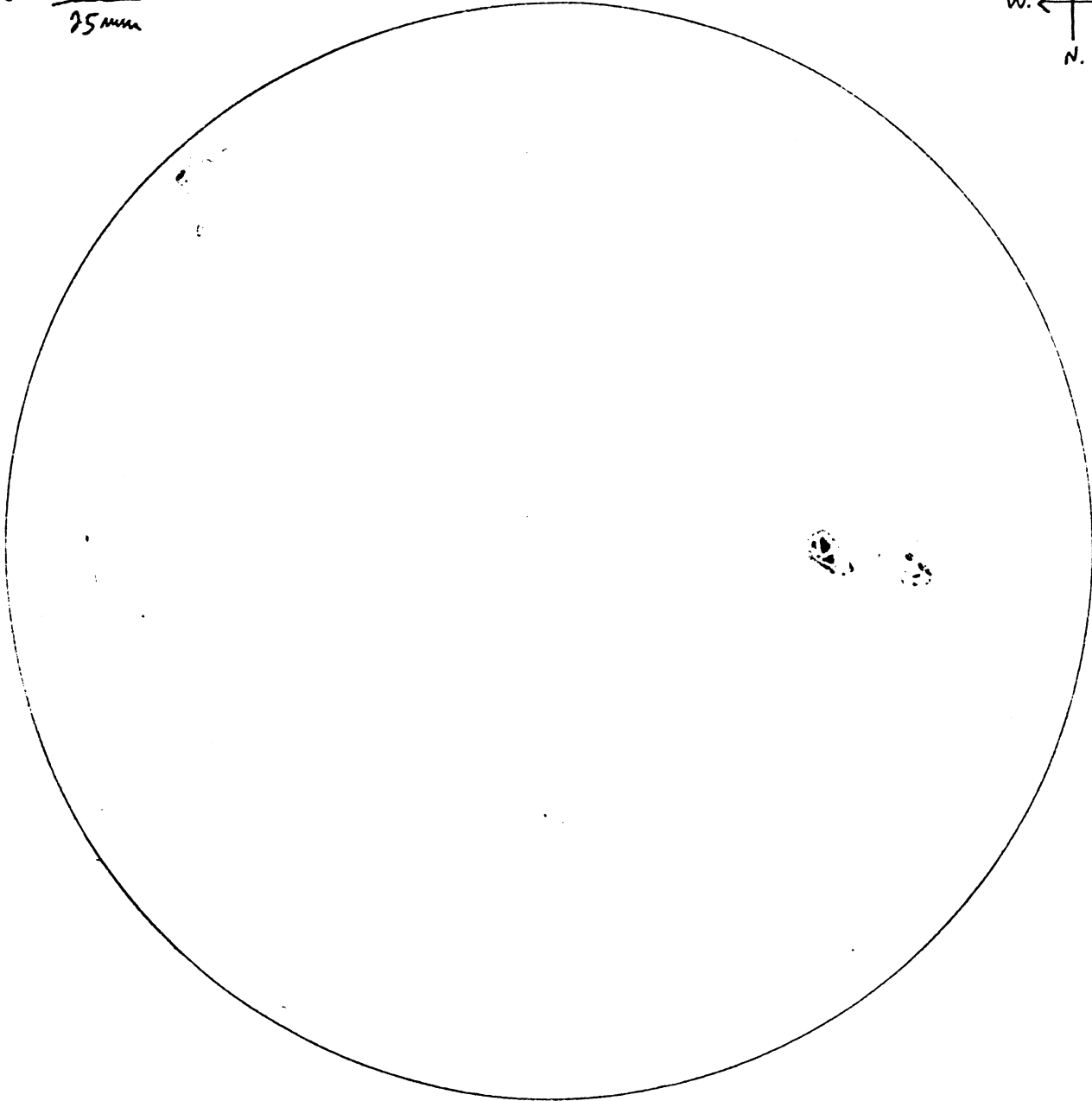
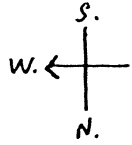
METHOD B
4/2/89
 $(2 \times 10) + 16 = 36$

(38)

APRIL 1, 1989 11:35 → 12:10 → 1:45 P.M. E.S.T.
VERY SLIGHT BREEZE IN AMONG OBSERVATORY TREES
SKIES 90% → 50% CLEAR

IMAGE VERY STEADY AT TIMES,
BLURRY AT TIMES

f8 $\frac{900\text{mm}}{25\text{mm}}$



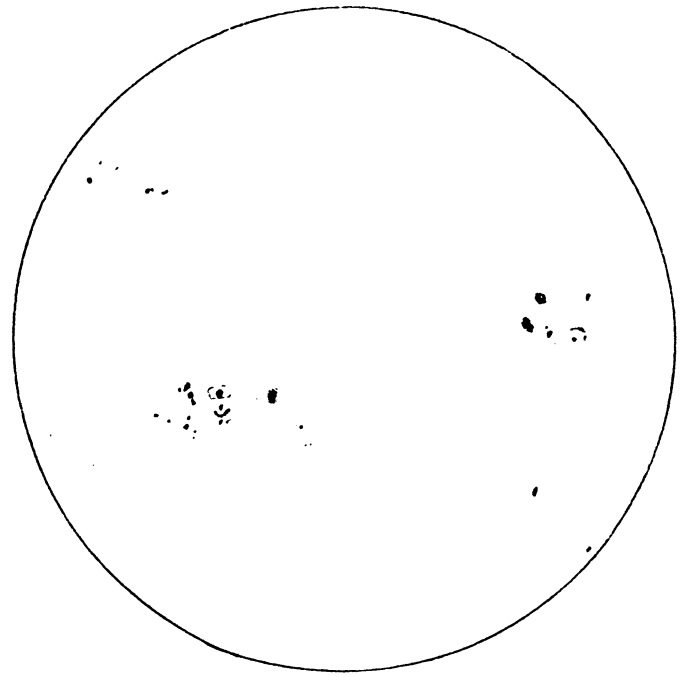
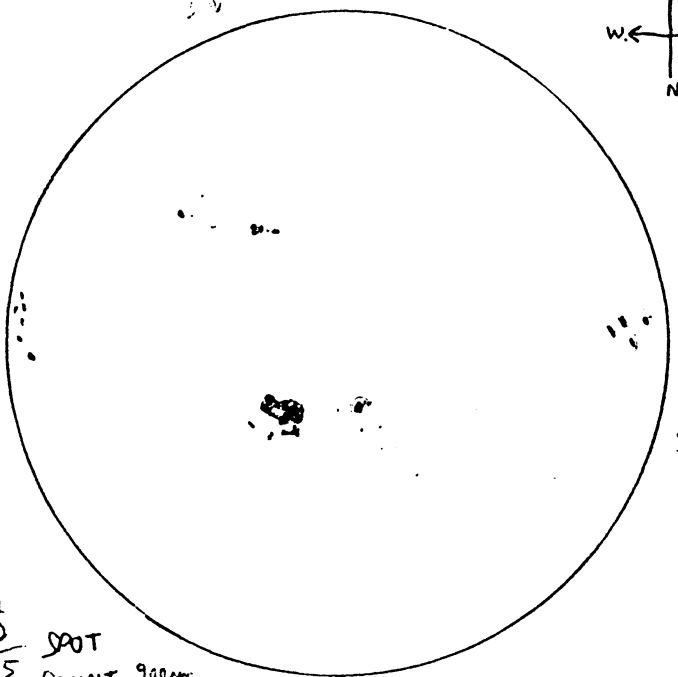
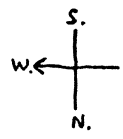
Two spots
seen in
circle
position of
main spot

MAR. 21, 1987 12:35-12:45 P.M. E.S.T.
 SKIES CLEAR WITH ISOLATED WHITE CLOUDS
 BREEZE JIGGLED TELESCOPE SOMETIMES

f 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$

MAR. 23 12:15-12:40 P.M. E.S.T.
 SKIES CLEAR ; SLIGHT BREEZE
 GRAINY SOLAR STRUCTURE GLIMPSED

49
 52



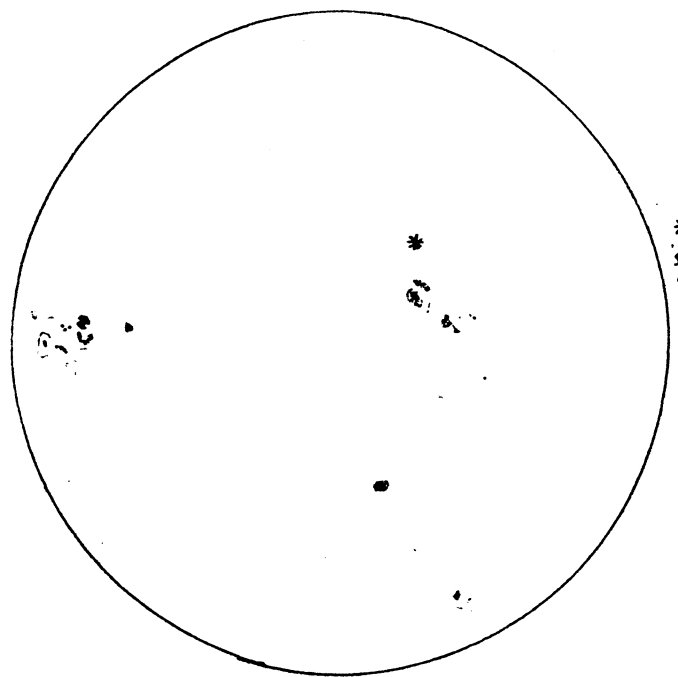
32
 49
 32
 70
 215

SPOT
 COUNT
 5 P.M.
 3/21

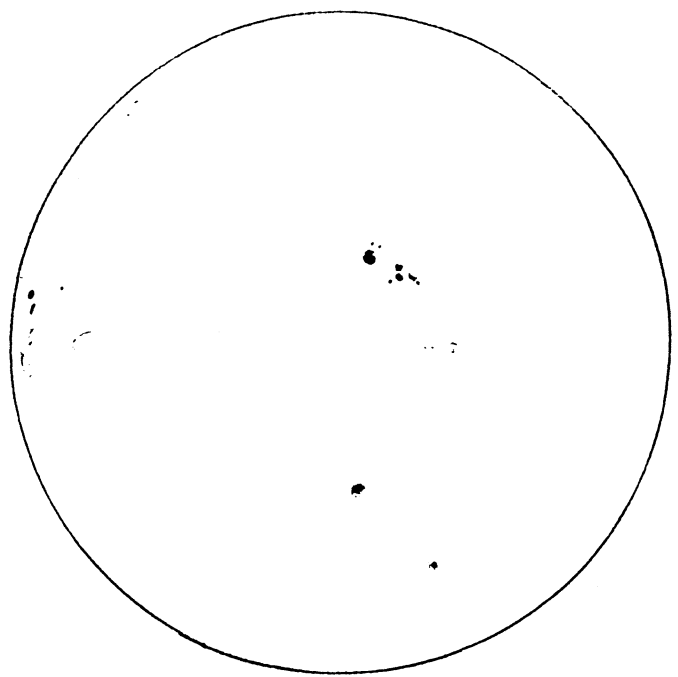
$\frac{900 \text{ mm}}{15 \text{ mm}}$
 92

MAR. 25 2:35-2:55 P.M. E.S.T.
 OVERCAST CLEARED TO TRANSP. HAZE
 IMAGE VERY STEADY

MAR. 26 3:30-4:00 P.M. E.S.T.
 SKIES CLEAR
 IMAGE BLURRY AT TIMES



* SPOT
 SHOULD
 BE HERE



APPARENT SIZE OF SUN



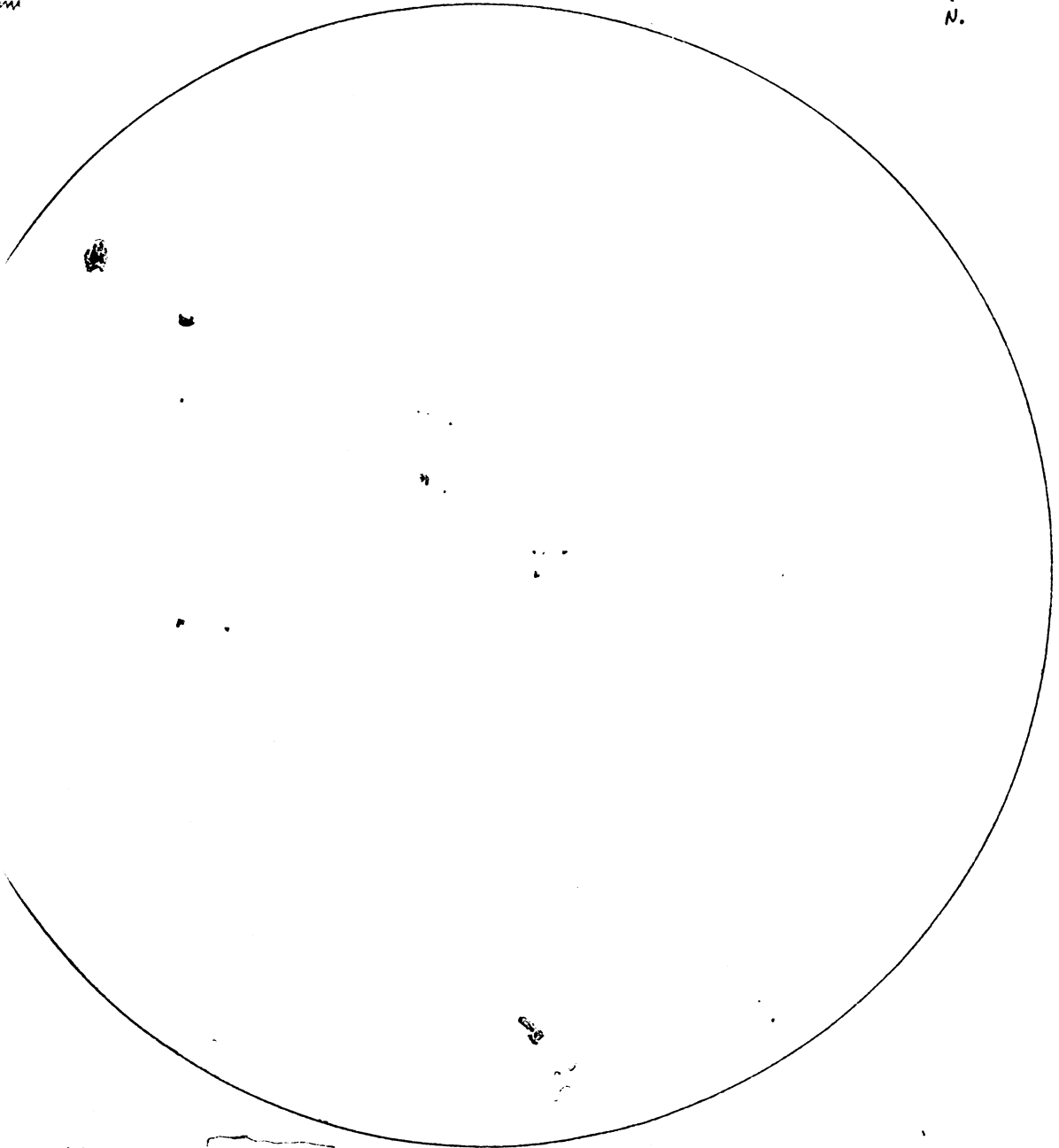
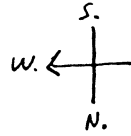
WHEN PAPER IS 22" AWAY

$\frac{5 \text{ mm}}{\times 17}$
 85 mm

38

APRIL 8/89 12:10-12:45 E.D.T.

VERY THIN HAZE IN BETWEEN DARK CUM. CLOUDS
SEEING $\frac{2}{5}$ (BLURRY); TRANSP. $\frac{5}{10}$



AUSSO
146

BRUSSELE
139

METHOD B

4/2/89

$$(2 \times 10) + 16 = 36$$

METHOD

189

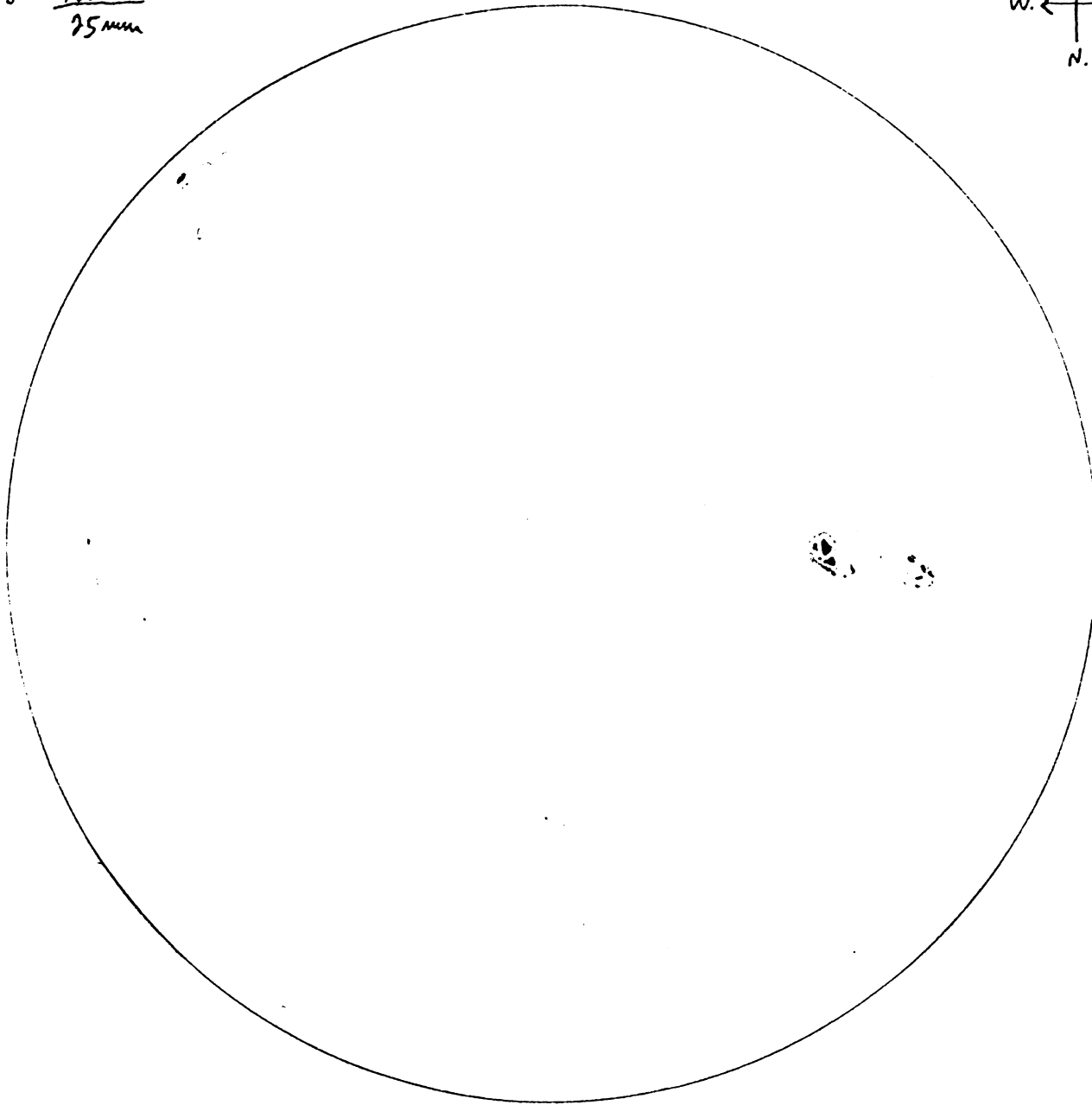
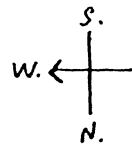
$$+ 16 = 86$$

38

APRIL 1, 1989 11:35 → 12:10 → 1:45 P.M. E.S.T.
VERY SLIGHT BREEZE IN AMONG OBSERVATORY TREES
SKIES 90% → 50% CLEAR

IMAGE VERY STEADY AT TIMES,
BLURRY AT TIMES

f8 $\frac{900\text{mm}}{25\text{mm}}$



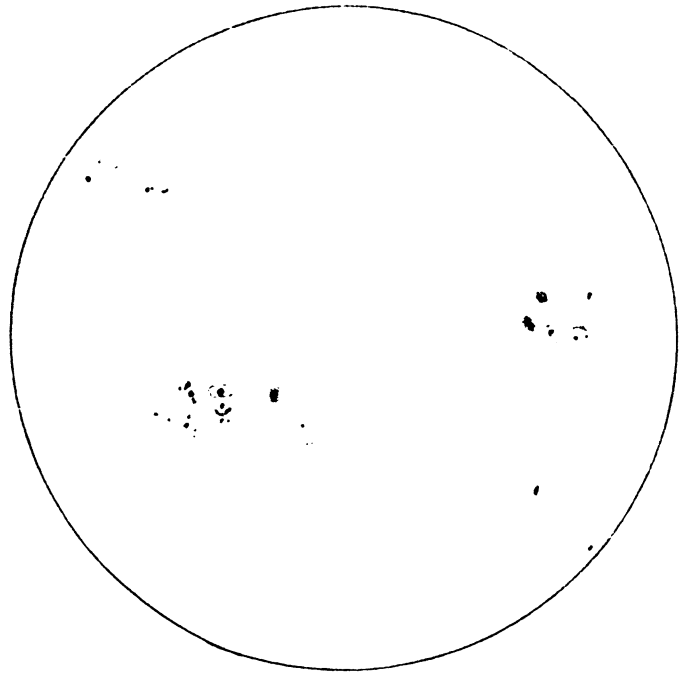
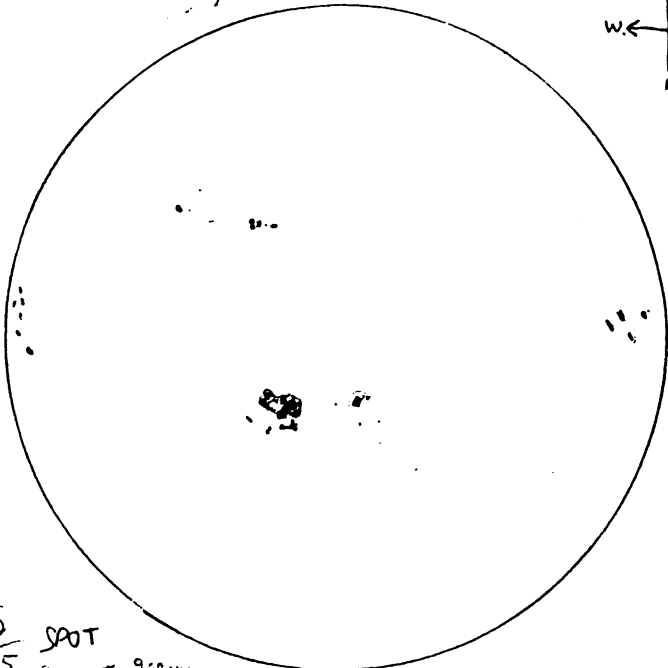
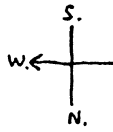
19. PS
SOUTH
EAST
WEST
NORTH

MAR. 21/87 12:25-12:45 P.M. E.S.T.
 SKIES CLEAR WITH ISOLATED WHITE CLOUDS
 BREEZE JIGGLED TELESCOPE SOMETIMES

f 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$

MAR. 23 12:15-12:40 P.M. P.M. E.S.T.
 SKIES CLEAR ; SLIGHT BREEZE
 GRAINY SOLAR STRUCTURE GLIMPSED

49



22

52

22
49
52
70
115

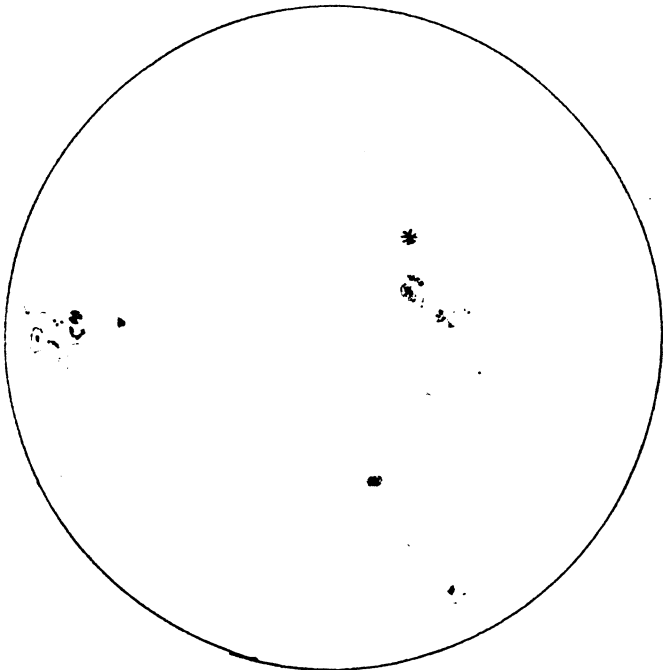
SPOT
COUNT
5 P.M.
3/21

$\frac{900 \text{ mm}}{15 \text{ mm}}$

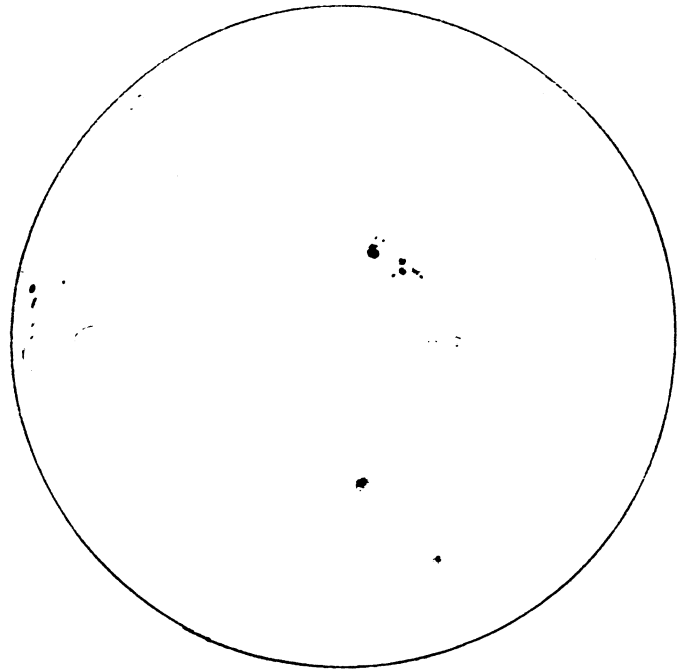
92

MAR. 25 2:35-2:55 P.M. E.S.T.
 OVERCAST CLEARED TO TRANSP. HAZE
 IMAGE VERY STEADY

MAR. 26 3:30-4:00 P.M. E.S.T.
 SKIES CLEAR
 IMAGE BLURRY AT TIMES



* SPOT
SHOULD
BE HERE



APPARENT SIZE OF SUN

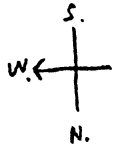


WHEN PAPER IS 22" AWAY

$\frac{5 \text{ mm}}{\times 17}$
85 mm

38

MAR. 10/89 12:30-12:45
 SKIES CLEAR. SLIGHT BREEZE

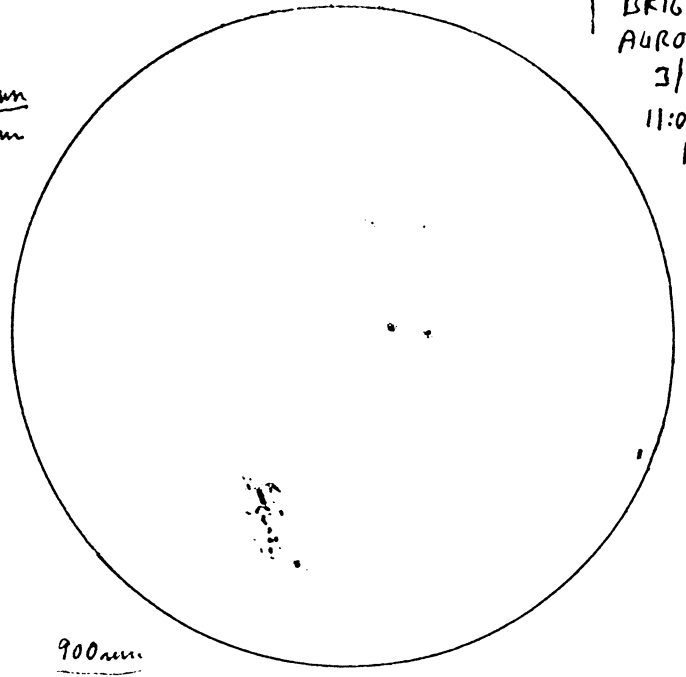
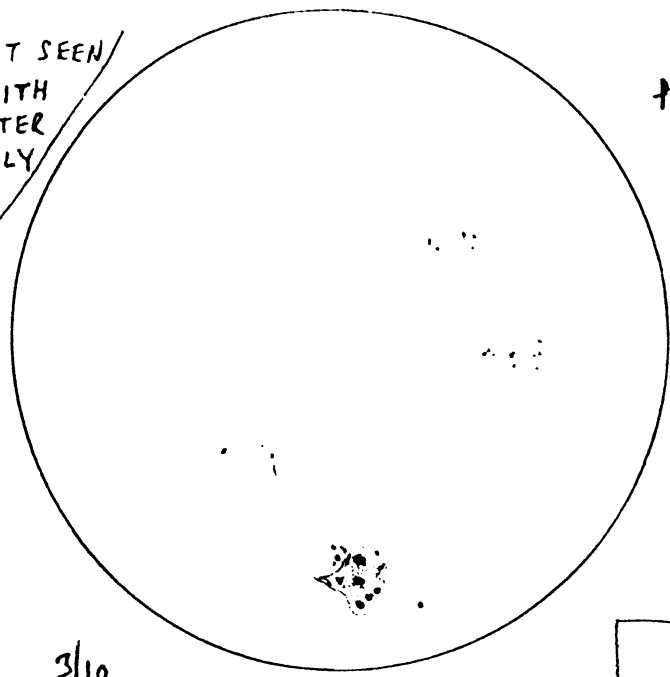


MAR. 12 9:10 - 9:30 P.M.
 SKIES CLEAR. IMAGE BLURRY SOME-
 TIMES BECAUSE OF RIPPLES

POT SEEN
 WITH
 FILTER
 ONLY
 10

f8 $\frac{900\text{mm}}{25\text{mm}}$

BRIGHT
 AURORAE
 3/12
 11:00 P.M.
 EST.

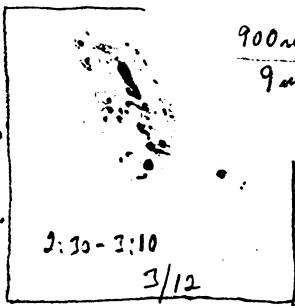


3/10

CONTRAST IN SPOT WAS SO SHARP,
 I SEEMED TO BE SEEING IT CLOSE-UP
 WITHOUT OPTICAL AID

MAR. 14/89 12:30-12:45 P.M.

SKY HAZY
 SLIGHT BREEZE

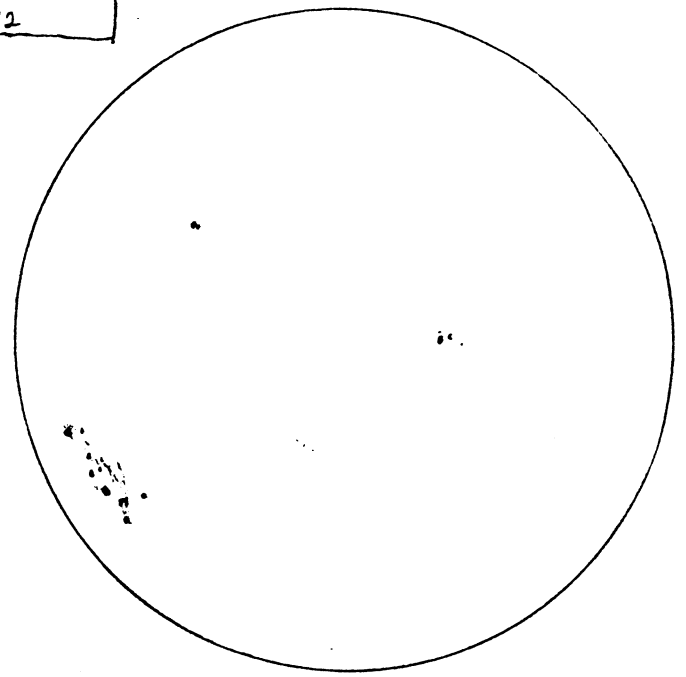
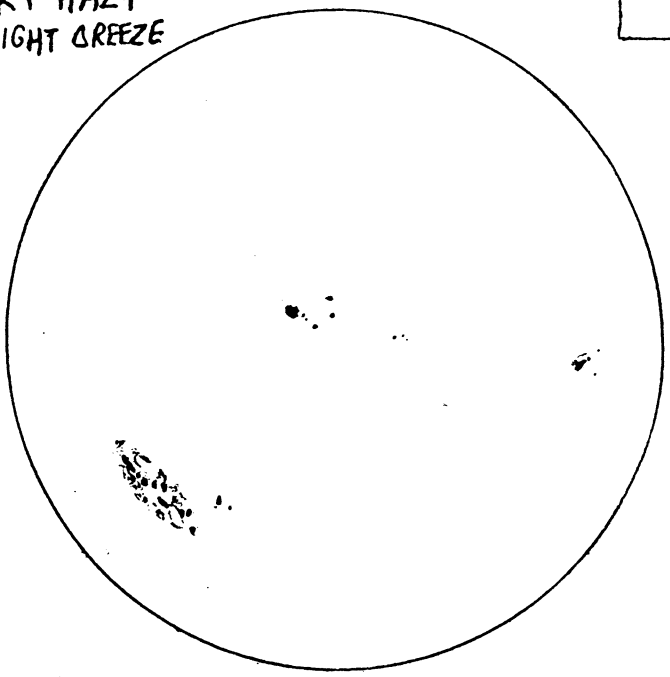


$\frac{900\text{mm}}{9\text{mm}}$

MAR. 16 12:20 - 12:35 P.M.
 SKIES 70% CLOUDY (FAST MOVING).
 GUSTY BREEZE IMPAIRED DRAWING

2:30-3:10

3/12



MAJOR AXIS OF SPOT COVERS
 ALMOST $\frac{1}{6}$ OF SUN'S DIAMETER.

(ESTIMATED WITH USE OF
 CROSS-HAIR)

HASTY SPOT COUNT f8 $\frac{900\text{mm}}{12\text{mm}}$

130
 + 170
 300

3/16

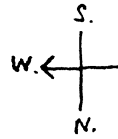
37

MAIN ST. & PARKDALE AVE.

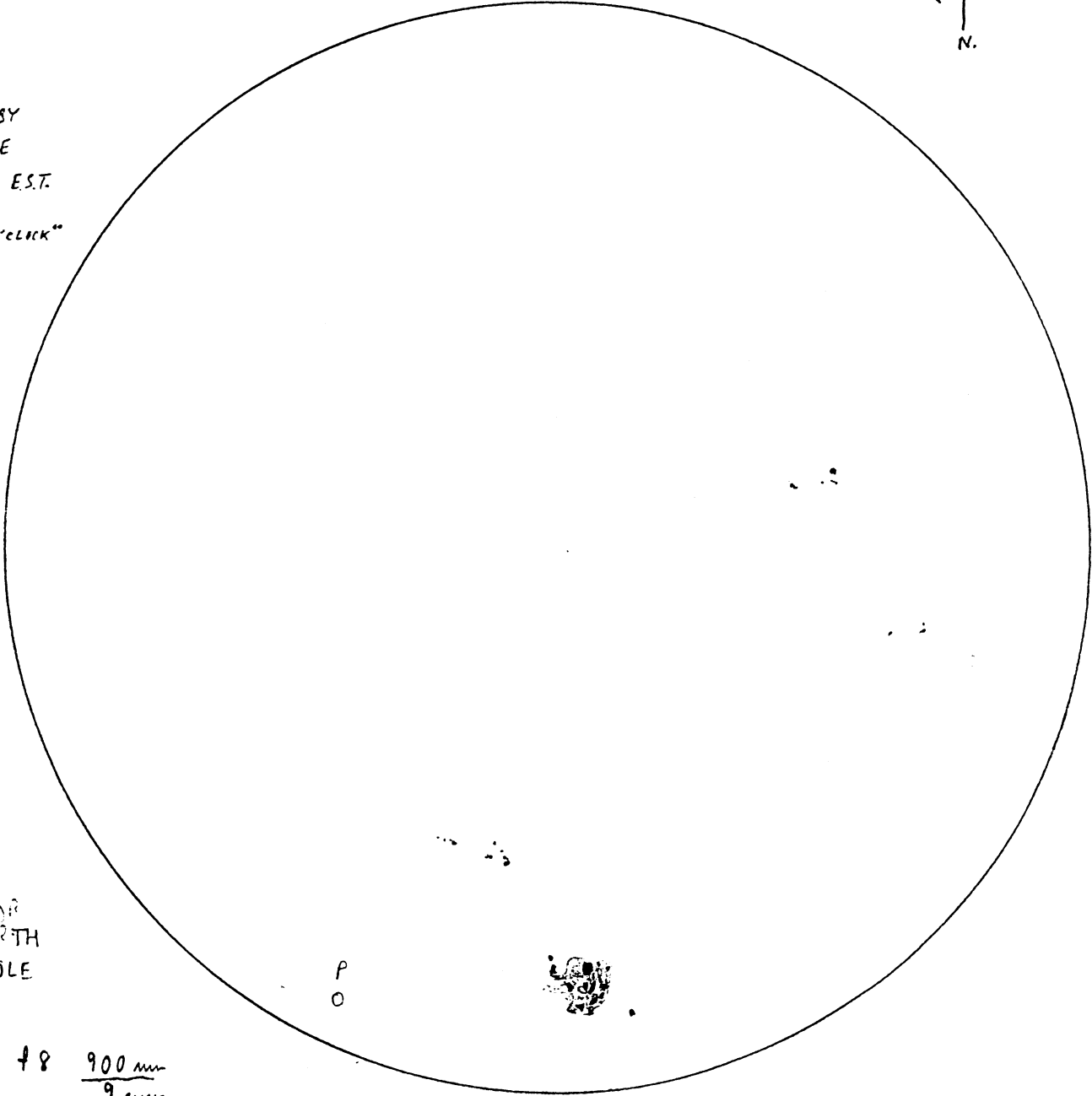
MAR 9/89 5:30 - 5:50 P.M. E.S.T.

SKIES CLEAR. MAIN SPOT HAD VERY HIGH CONTRAST

f 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$



SPOT SEEN BY
PAT LALONDE
12:50 P.M. E.S.T.
SHOT AT 12 O'CLOCK"



P₂ SOLAR
NORTH
POLE
(18)

f 8 $\frac{900 \text{ mm}}{9 \text{ mm}}$

5:50 P.M.



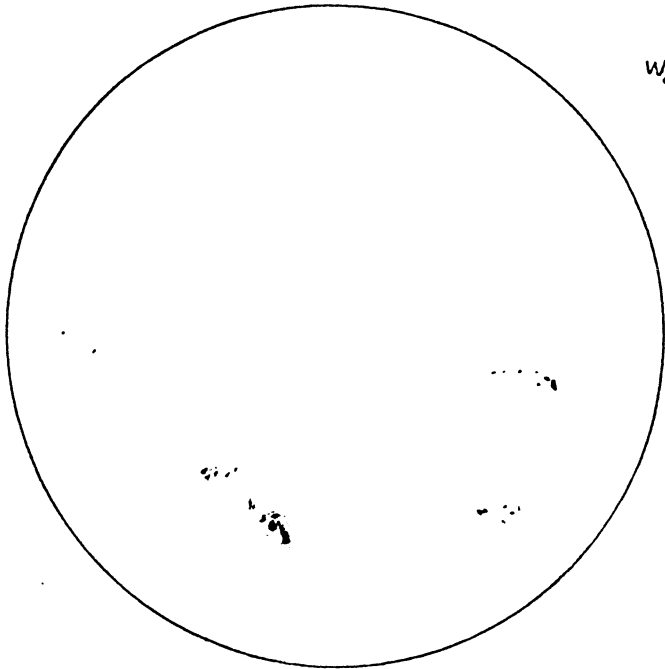
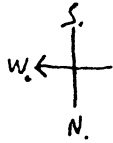
SUN STARTED TO FLATTEN
6:00 P.M.

SUNSET BEHIND ESCARPMENT
6:05 P.M.

VUE DEGRADEE BY
EVENING HAZE

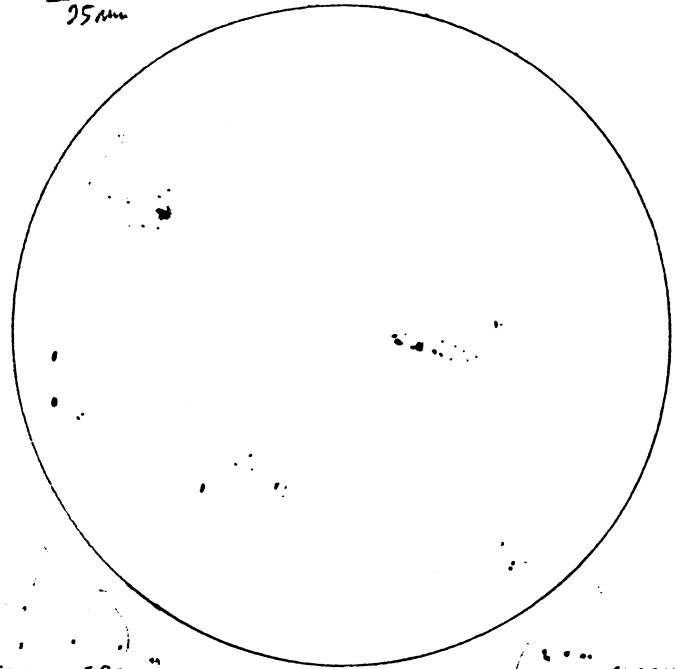
FEBRUARY 11/89 1:45-1:55 P.M. E.S.T.
 SKIES 50% CLEAR
 FAST DRIFTING CLOUDS
 ~ → 1/21

f 11.5 $\frac{700 \text{ mm}}{25 \text{ mm}}$



FEB. 18 1:40-2:00 P.M. EST.
 TRANSP. $\frac{7}{10}$; SEEING $\frac{2}{5} \rightarrow \frac{3}{5}$ (DECREASING TURB.)
 SKIES 60% CLEAR WITH DRIFTING CLOUD PATCHES
 COPIED FROM ORIGINAL 4:30 P.M. ~ 1/21

f 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$



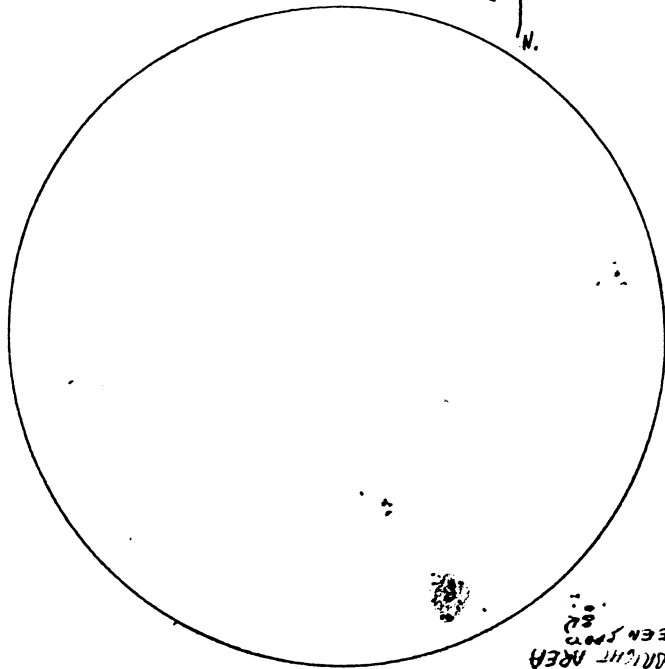
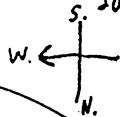
"FADED-GREY"

"JET-BLACK"

ARE JET-BLACK SPOTS YOUNGER THAN "FADED-GREY" SPOTS?

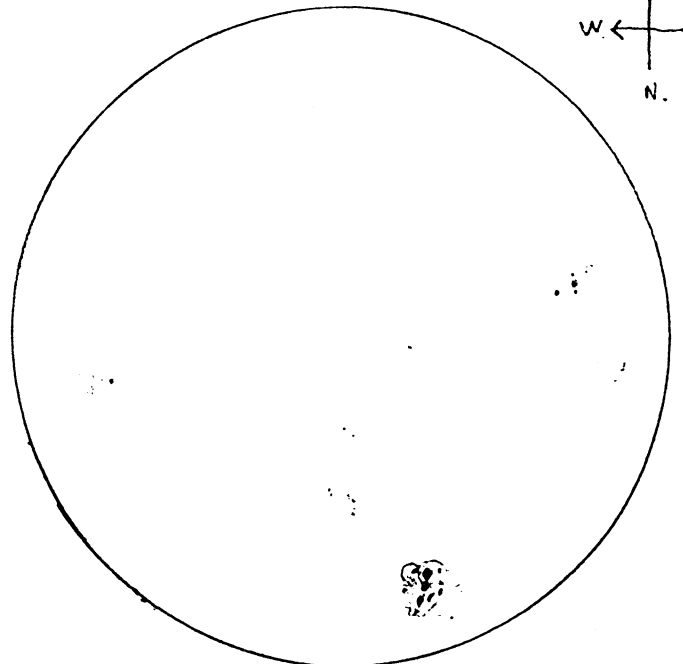
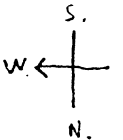
MAR. 8/89 10:45 P.M.
 SKIES CLEAR
 GOOD TRANSP. SOME TURB.

f 11.5 $\frac{700 \text{ mm}}{20 \text{ mm}}$



MAR. 8 5:25-5:45 P.M.
 SKIES CLEAR

f 8 $\frac{900}{25}$



DRIFT AREA
 BETWEEN SPOTS

DRIFT AREA

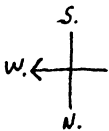
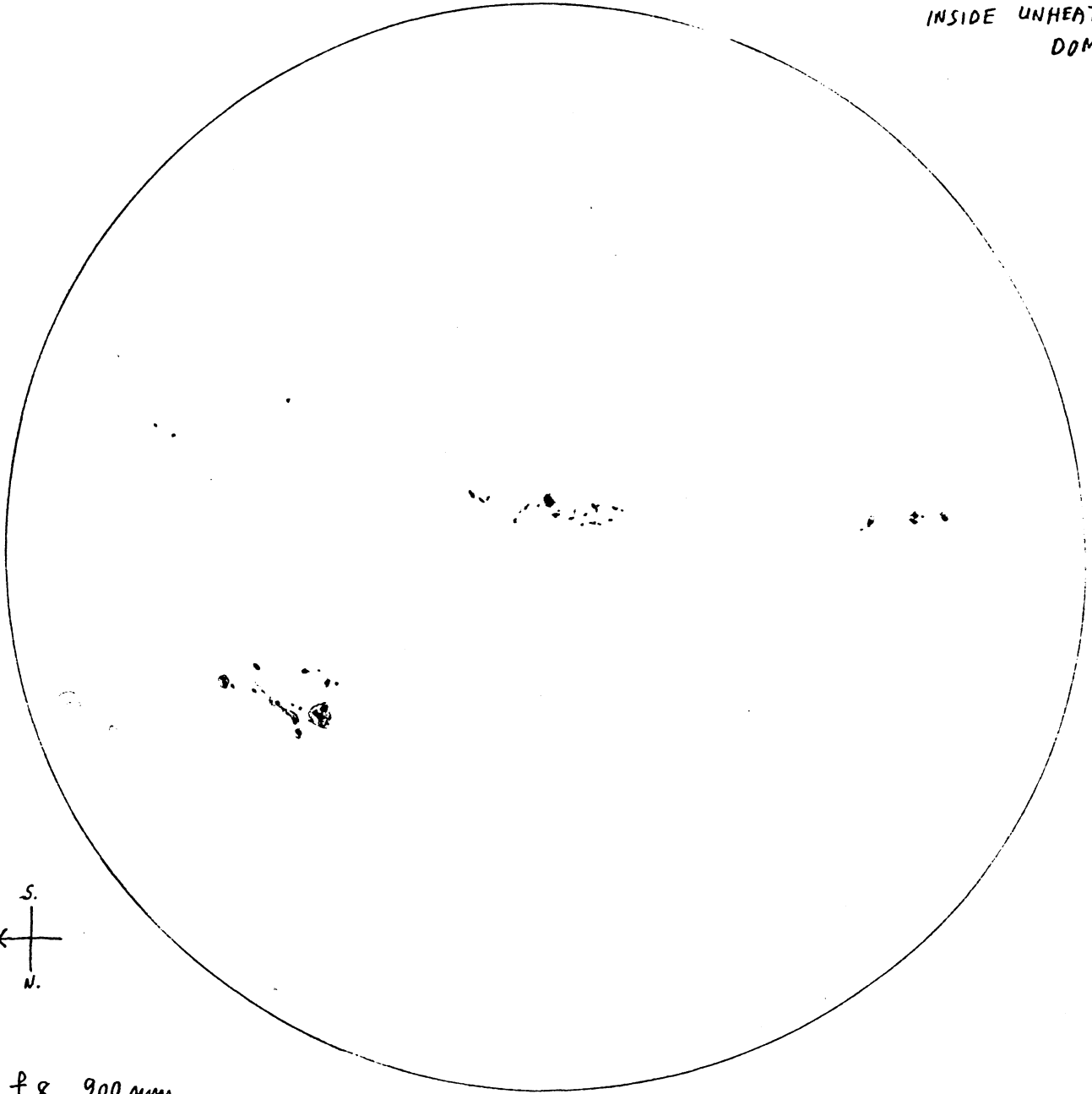
36

D. M. Y.
3/6/89 f 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$
 QUICK LOOK 12:45 P.M. EST.
 FAST MOVING CLOUDS, SMALL
 HAZY PATCH. NO SPOTS SEEN!
 GARY W. PHONED 3/7 7:30 A.M.
 REPORTED SOLAR FLARE (3/6)
 SNOWSTORM A.M. "LAKE EFFECT"
 OVERCAST P.M.

JAN. 28/89 12:15-12:55 E.S.T.

SKIES CLEAR IN SUN'S AREA
SEEING $\frac{4}{10}$ (IMAGE BLURRY, RIPPLES ALONG SUN'S LIMB
TRANSP. $\frac{7}{10}$
LARGE EVERGREEN BRANCHES MOVE IN BREEZE
SOME BREEZE IN PARKING LOT IN BETWEEN TREES

TEMP +5°C
INSIDE UNHEATED
DOME



f 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$

APPARENT SIZE OF SUN



WHEN PAPER IS HELD 28" AWAY

$\frac{5 \text{ mm}}{170 \text{ mm}}$

(17)

35

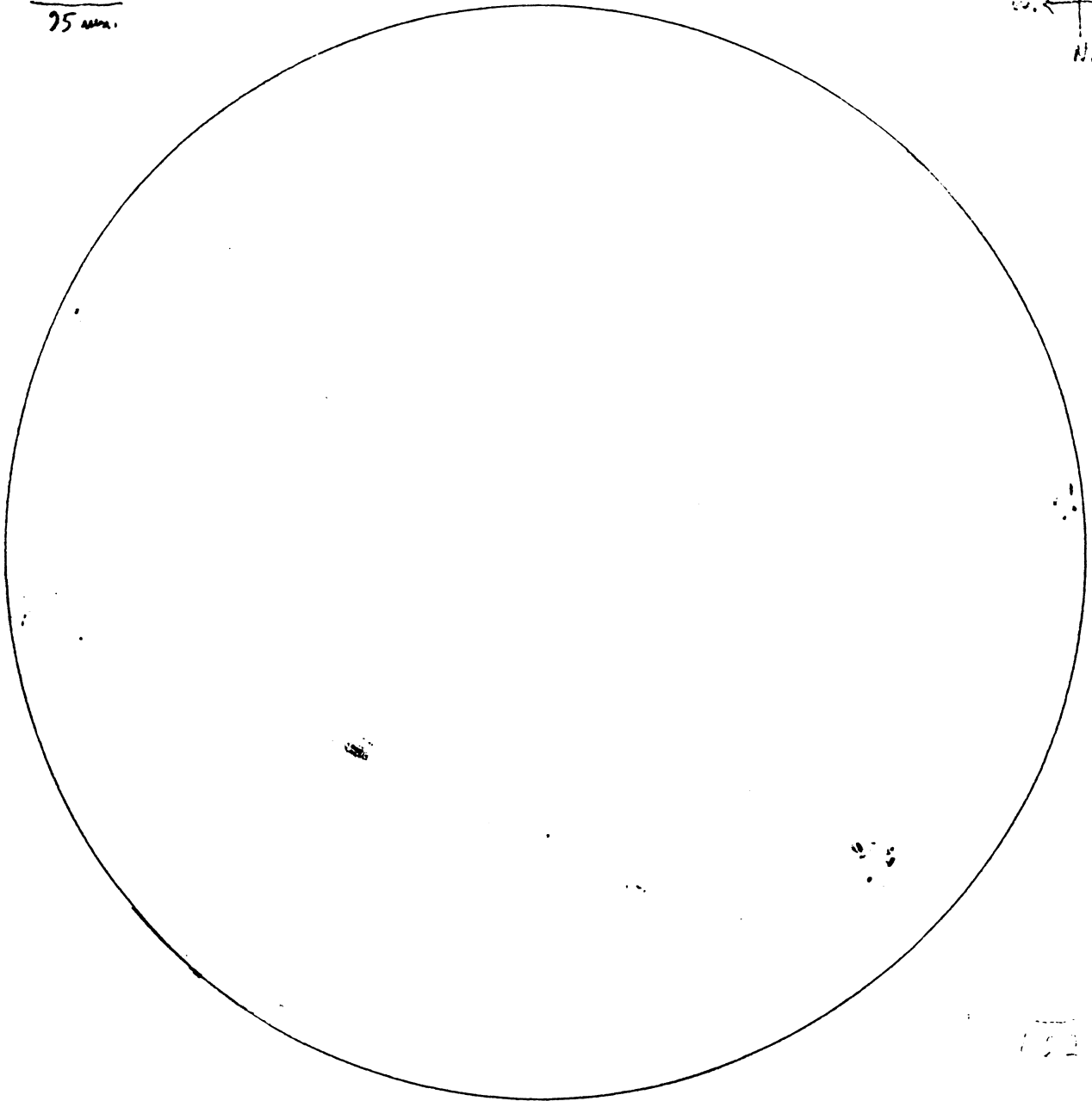
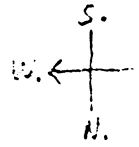
JAN. 22/89 2:35 P.M. - 2:50 P.M. E.S.T.

SKIES CLEAR

TRANSP. $\frac{8}{10}$

SEEING $\frac{5}{10}$; VERY TURBULENT ALONG LIMB

f8 $\frac{900 \text{ mm.}}{25 \text{ mm.}}$



SUN DISAPPEARED
BEHIND TREES

3:22 → 4:02 P.M.

AT OBSERVATORY

SUNSET IN
TOTALLY CLEAR SKIES

5:17 P.M. E.S.T.

DEVERLEY SWAMP PRESERVE

#59 90/1/28

16

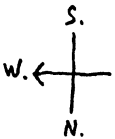
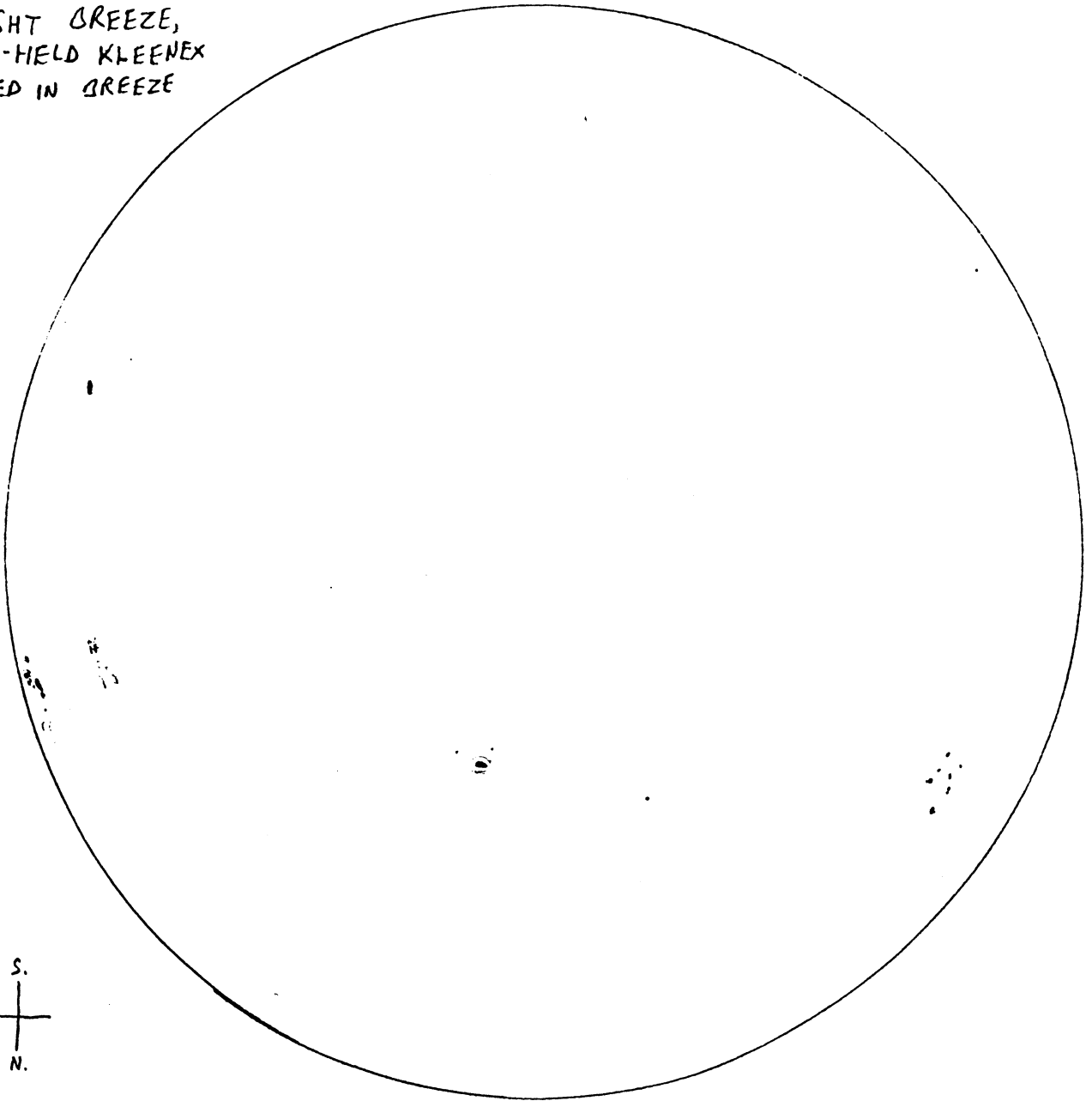
35

JAN. 21/89 2:00 PM. - 2:25 PM. E.S.T.

SKIES CLEAR TILL 2:10 : → 2:10 FAST DRIFTING WHITE CLOUDS
MOVED ACROSS SUN IN 5 SECONDS (TIME)

TRANSP. $\frac{8}{10}$ (WHEN SKIES WERE CLEAR)
SEEING $\frac{7}{10}$ (SLIGHT RAPPLE ALONG LINE OF SUN)

SLIGHT BREEZE,
HAND-HELD KLEENEX
MOVED IN BREEZE



f 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$

SPOT SHOULD BE
SLANTED

(15)

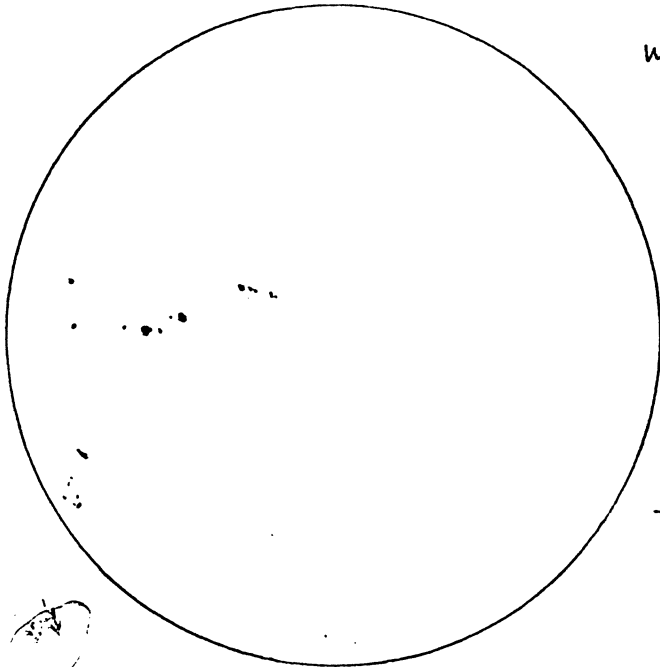
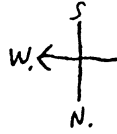
(35)

JAN. 1/89 4:20-4:30 P.M. EST.

SKIES CLEAR: TRANSP. $\frac{8}{10}$, SEEING $\frac{5}{10}$

(B. COS) (SUNSET 4:50 P.M.)

(SUN CLOSE TO HORIZON)



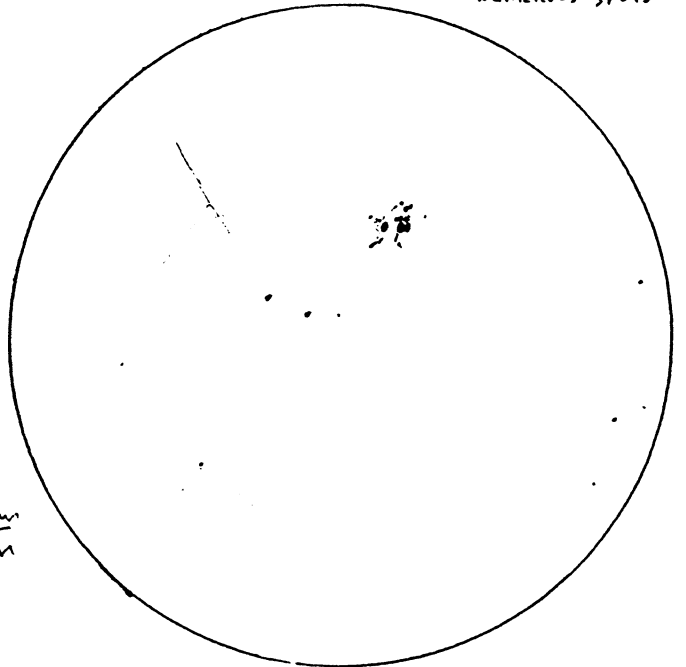
f 8 $\frac{900mm}{25mm}$

JAN. 11/89 12:20 PM EST.

VERY RAPID DRAWING

CLEAR SKIES IN BETWEEN 80% CLOUDS

TRANSP. $\frac{9}{10}$ PENUMBRA RESOLVED INTO NUMEROUS SPOTS



FLATTENED SUN
TOUCHED TREE BRANCHES

4:40 P.M.

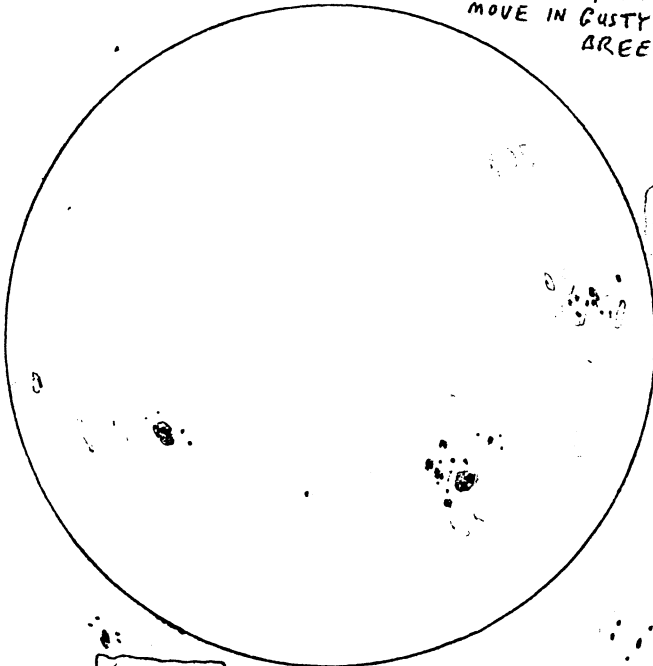
JAN. 23 1:15 - 1:45 P.M. EST.

SKIES TOTALLY CLEAR

SEEING RANGE $\frac{2}{5} \rightarrow \frac{4}{5}$

TRANSP $\frac{8}{10}$

SMALL TREE BRANCHES
MOVE IN GUSTY BREEZE

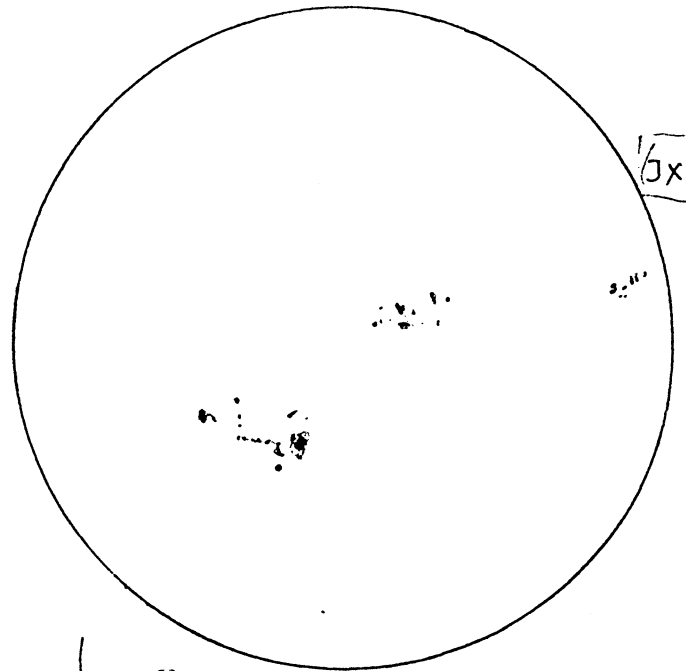


(5x10)+12

1/27/89 12:20 P.M. EST.

SKIES 60% → 30% → 0% CLEAR

SMALL BRANCHES MOVED IN BREEZE



(3x10)+3

(10x1)+6

(1)

(8x10)+14

(6x10)+13

(4x10)+14

35

1/24, 25, 26
OVERCAST

TEMP. +9°C

94
16 f 8 $\frac{900mm}{7mm}$
62
173 spot count

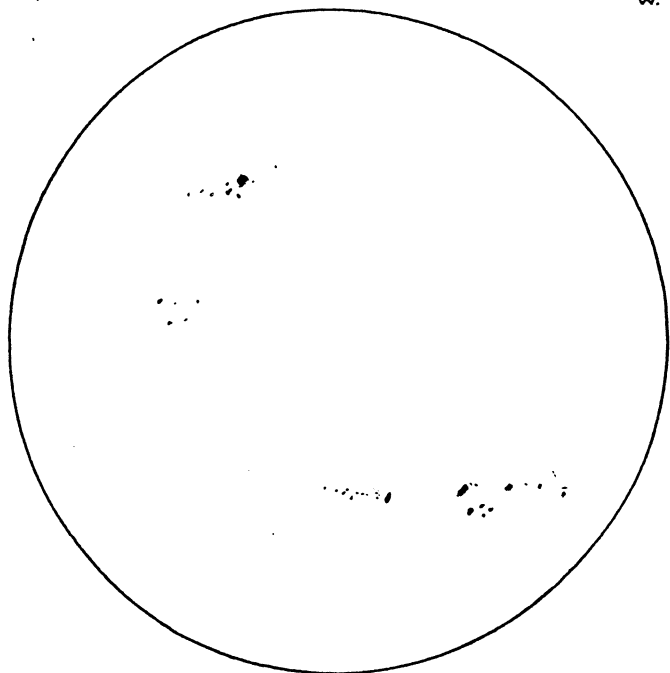
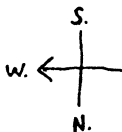
73
54 f 8 $\frac{900mm}{36mm}$
33
IT count

SPOT COUNT
IMPAIRED BY
VIBRATING IMAGE

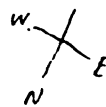
DEC. 16/88 12:20 PM E.S.T.
 SKIES CLEAR WITH 25% WHITE CLOUD
 cum
 SEEING $\frac{5}{10}$; TRANSP. $\frac{7}{10}$
 TELESCOPE
 JIGGLED

108 WENTWORTH ST.

f 11.5 $\frac{700mm}{25mm}$

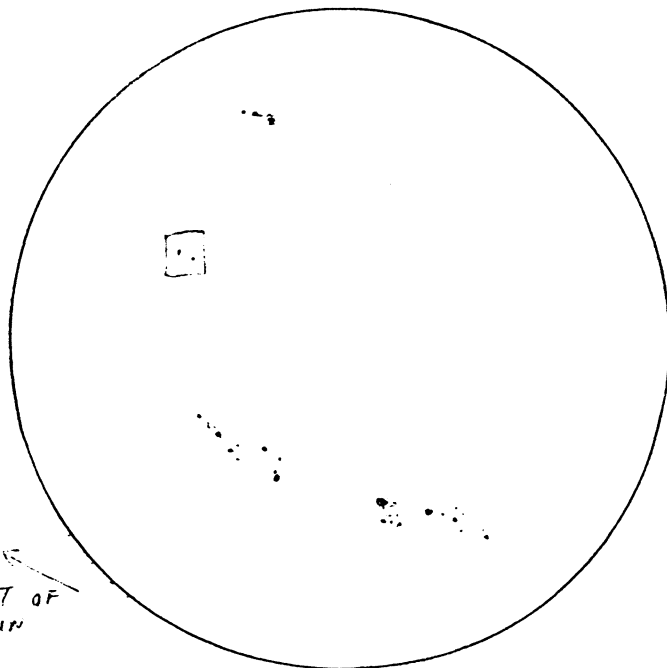


DEC. 17/88 3:15 PM S.
 THIN HAZE IN
 SUN'S AREA



OBSERVED
 SPOTS BUT
 NEGLECTED
 TO DRAW THEM

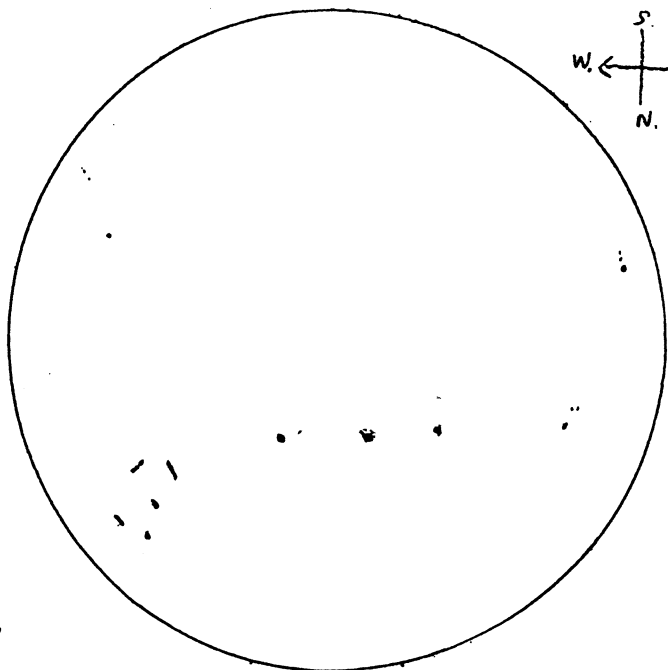
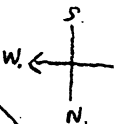
MYRTLE ST. PARK



DRIFT OF
 SUN

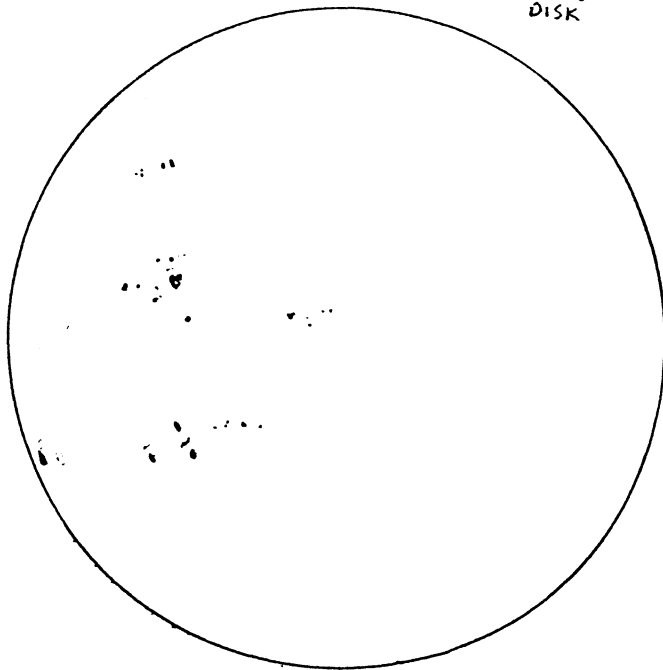
DEC. 23/88 12:30 PM E.S.T.
 ROUGH SKETCH; STRONG WIND
 LARGE TREE BRANCHES MOVE
 SKIES CLEAR

f 11.5 $\frac{700mm}{30mm}$



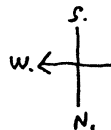
BRIGHT POINT IN
 BETWEEN SPOTS

DEC. 30/88 12:30 PM E.S.T.
 SKIES CLEAR SEEING $\frac{5}{10}$; TRANSP. $\frac{8}{10}$
 GRAINY STRUCTURE VISIBLE OVER ENTIRE DISK
 SMALL BRANCHES
 SWAY IN BREEZE



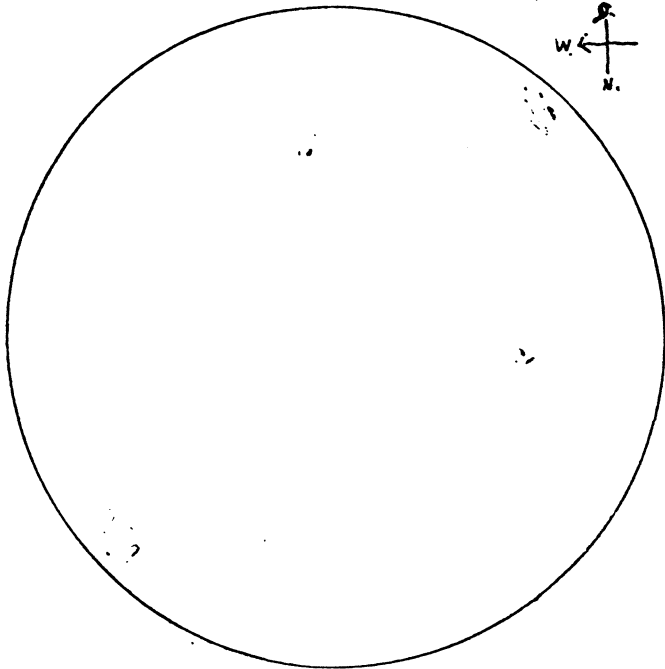
USED AMICI PRISM IN REFRACTOR
 TURNED PAPER UP-SIDE-DOWN,
 TO MAKE DRAWING

f 8 $\frac{900mm}{25mm}$



NOV. 25th 12:30 P.M. E.S.T.
 HAZY CLOUD STREAKS IN BLUE SKY
 TRANSP. $\frac{2}{5}$

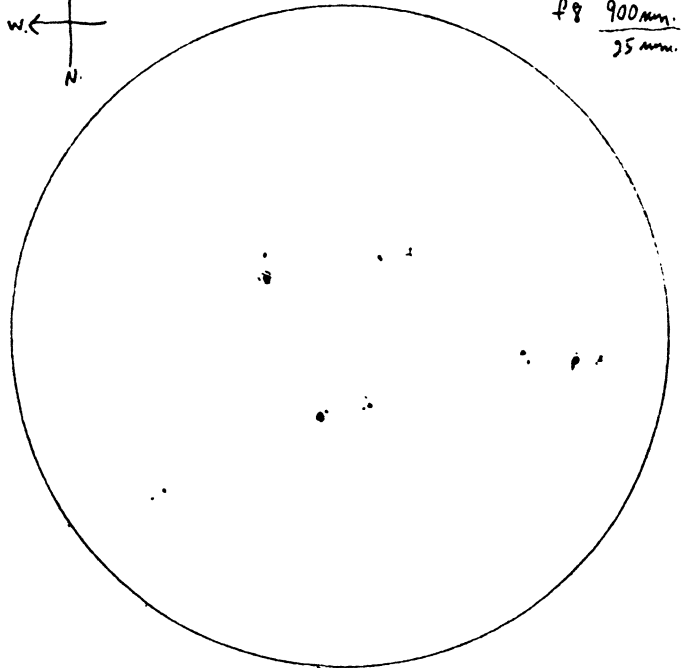
f1k $\frac{700mm}{30mm}$
 S
 W ← N



THURSDAY
 DEC. 1 12:30 P.M. E.S.T.
 VERY RAPID DRAWING CLEAR PATCHES IN BETWEEN
 80% CLOUDS
 SEEING $\frac{2}{5}$; TRANSP. $\frac{7}{10}$

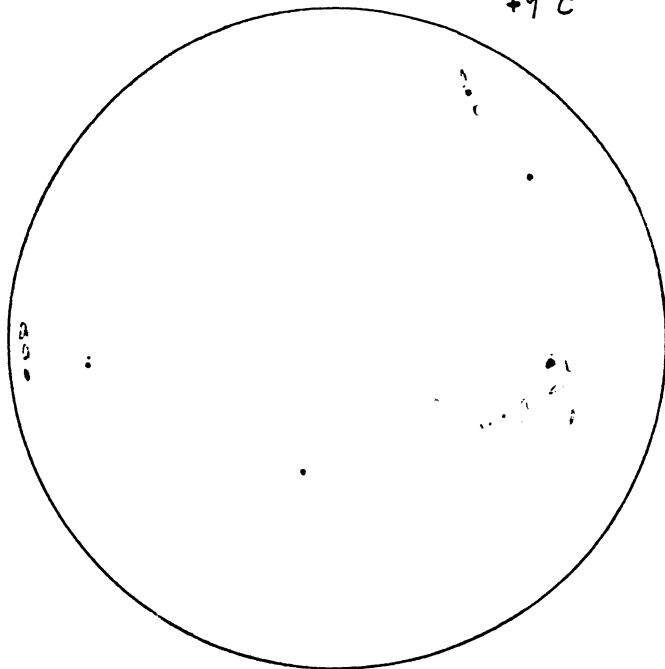
S
 W ← N

f8 $\frac{900mm}{35mm}$



DEC. 6 12:20 P.M. EST. : RAPID DRAWING
 SKIES CLEAR SEEING $\frac{5}{10}$ TRANSP. $\frac{8}{10}$
 STRONG WIND, LARGE BRANCHES SWAY
 SOUTH

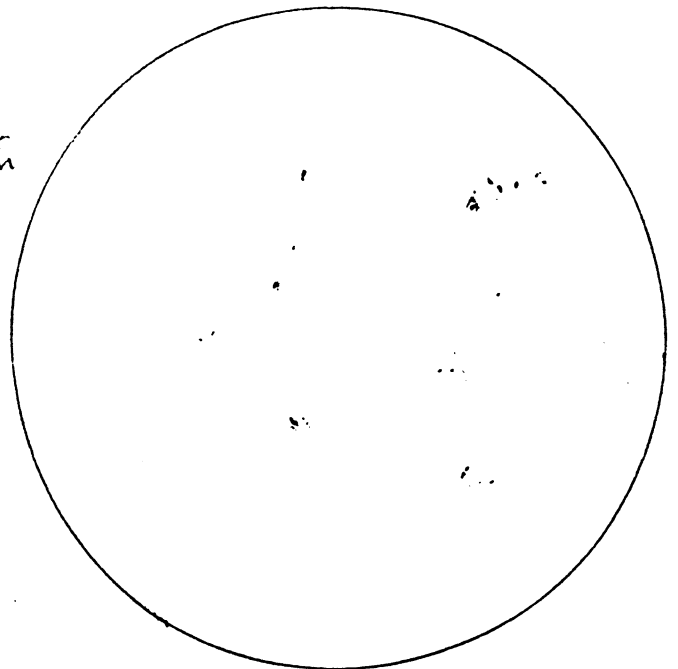
+9°C



DEC. 11 1:50 P.M. E.S.T.
 SKIES CLEAR; SEEING $\frac{2}{5} \rightarrow \frac{3}{5}$; TRANSP. $\frac{8}{10}$
 (TURBULENCE ALONG LIMB (DISAPPEARED))

S
 W ← N

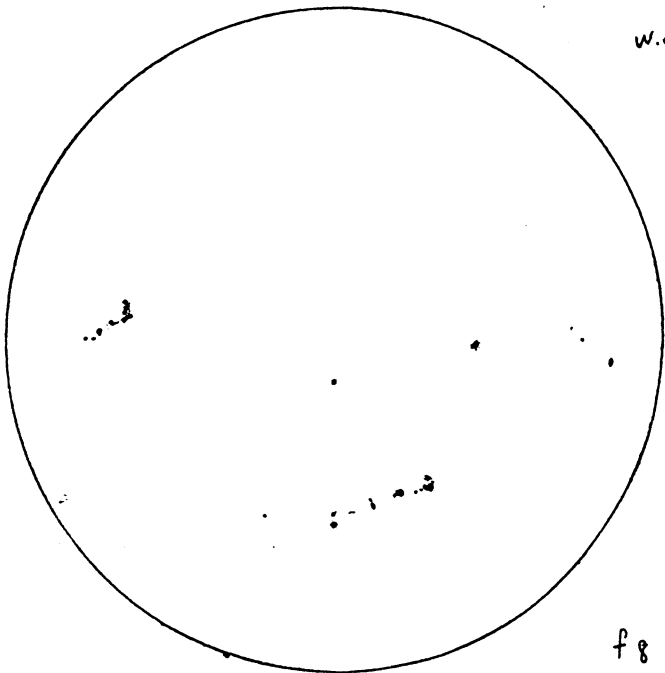
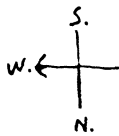
f8 $\frac{900mm}{35mm}$



TEMPT. AT OBSERVATORY -15°C IN SHADE.
 NO BREEZE, CALM
 SUN DISAPPEARED BEHIND TREES
 3:00 P.M. E.S.T.

NOV. 15/88 12:30 P.M. E.S.T.

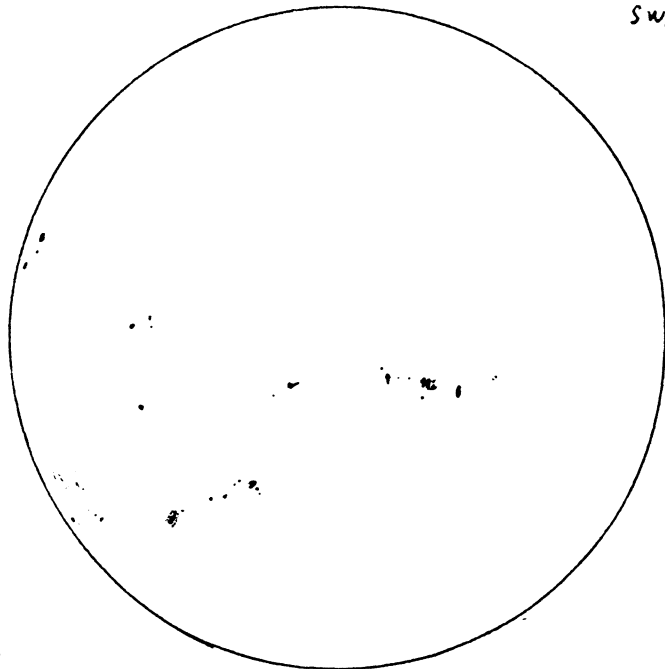
CIRRO-STRATUS CLOUDS IN SUNS AREA
TRANSP. $\frac{4}{5}$; SEEING $\frac{7}{10}$



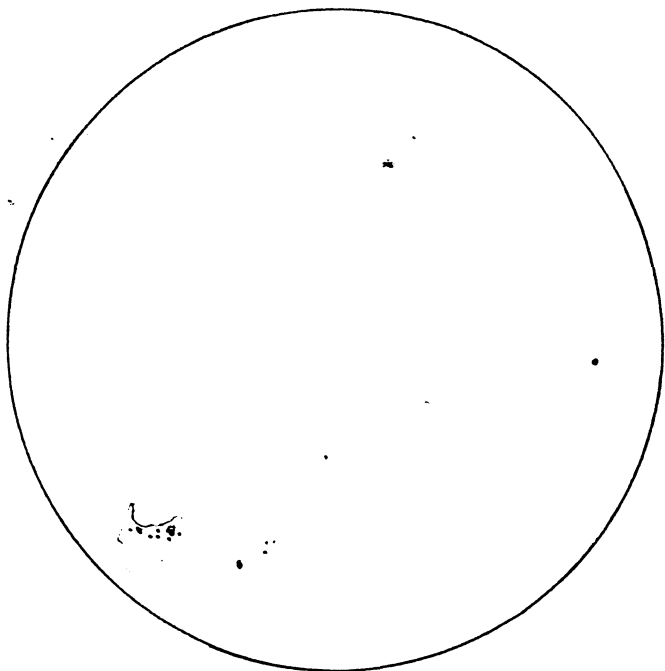
f 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$

NOV. 18 12:30-12:45 E.S.T

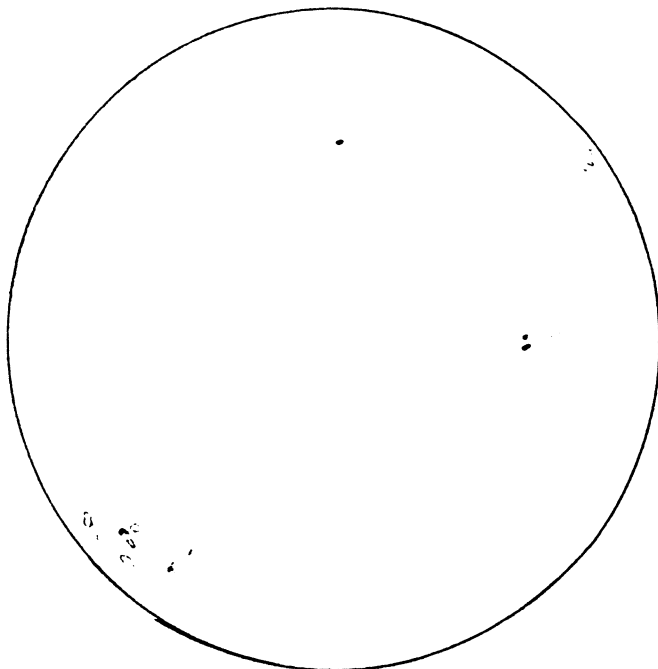
SKIES CLEAR WITH WHITE SMALL CLOUDS
TRANSP. $\frac{9}{10}$; SEEING $\frac{4}{5}$
TELESCOPE JIGGLED IN BREEZE
(SMALL BRANCHES SWAY)



11/23 12:30 P.M. E.S.T.
HAZY TO CIRRUS CLOUDS



11/24 12:40 P.M. E.S.T.
SKIES CLEAR; SEEING TURBULENT
GRAIN GLIMPSED



MISSED A LARGE SPOT
WEEK OF 10/2

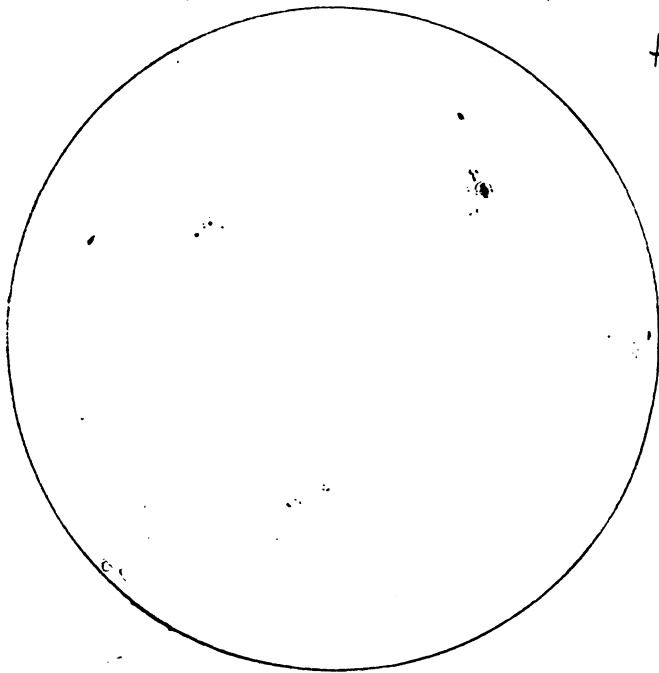
RAPID DRAWING; NO DRIVE

ISOLATED CLEAR PATCHES BETWEEN
CLOUDS

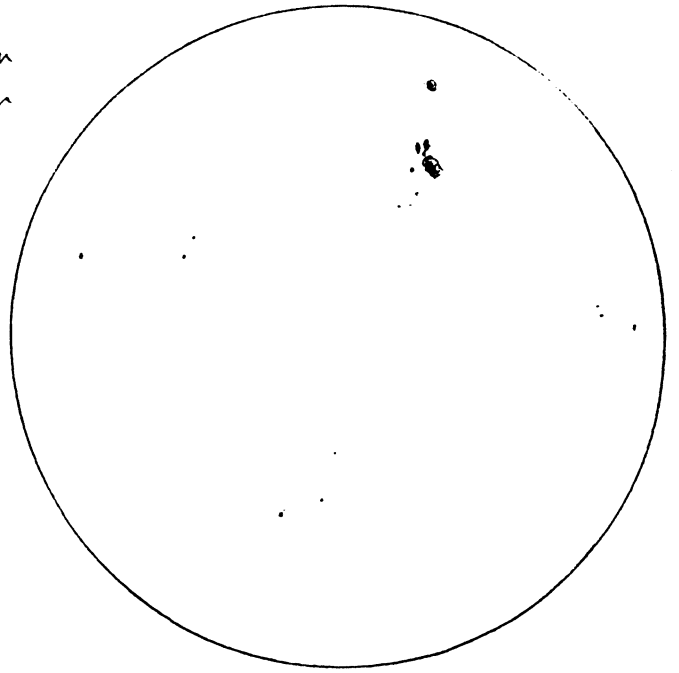
OCT. 30 3:45 P.M. E.S.T
SEEING $\frac{7}{5}$; TRANSP $\frac{4}{5}$

OCT 31 12:15 P.M. EST

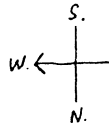
SKIES CLEAR WITH WHITE CLOUD STREAKS
SEEING $\frac{7}{5}$; TRANSP $\frac{4}{5}$ NO DRIVE



f 8 900mm
25mm



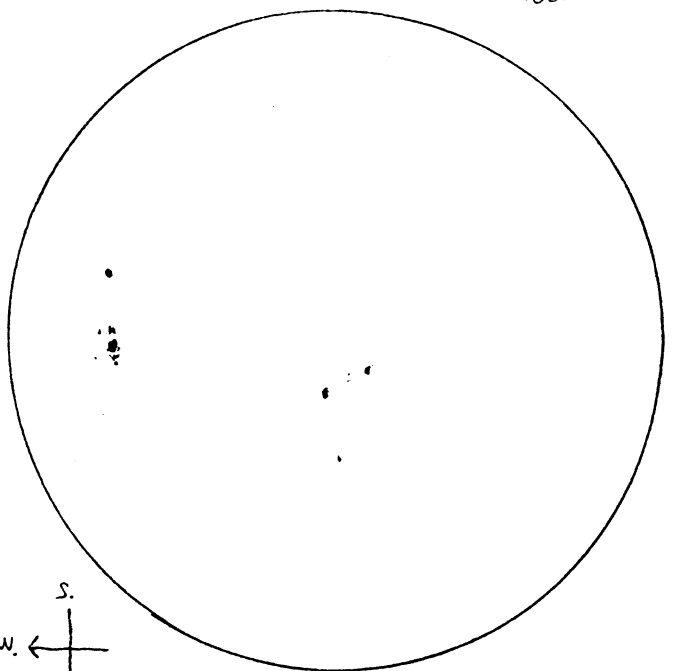
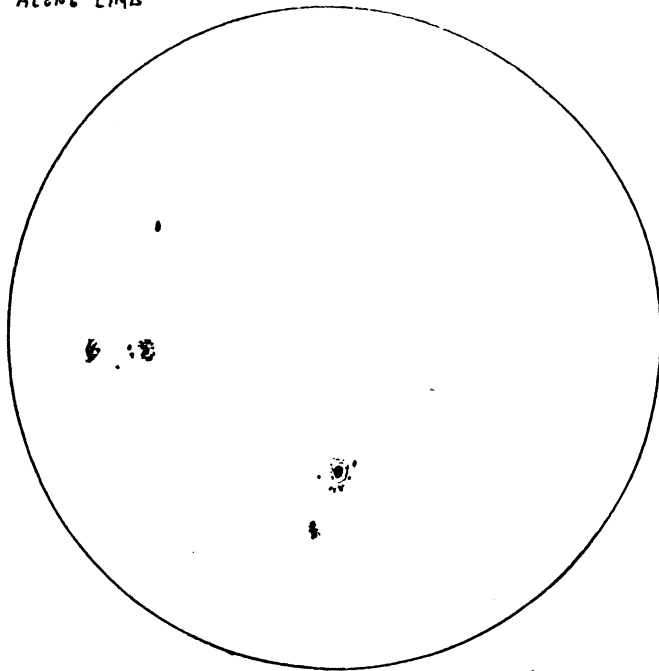
COMMON FACULA FORM!?



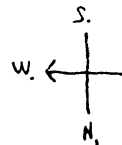
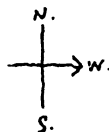
NOV. 3 12:45 PM
SEEING $\frac{7}{5}$; TRANSP $\frac{4}{5}$
RIPPLES
ALONG LIMA

f 11 700mm
30mm
USED EYE-PIECE
filter

NOV 7 11:30 A.M. (DRAYTON) f 8 900mm
CLEAR PATCHES IN BETWEEN
FAST-MOVING CLOUD DECK
TRANSP (WHEN CLEAR) $\frac{4}{5}$ SEEING TELESCOPE
JIGGLED MA.

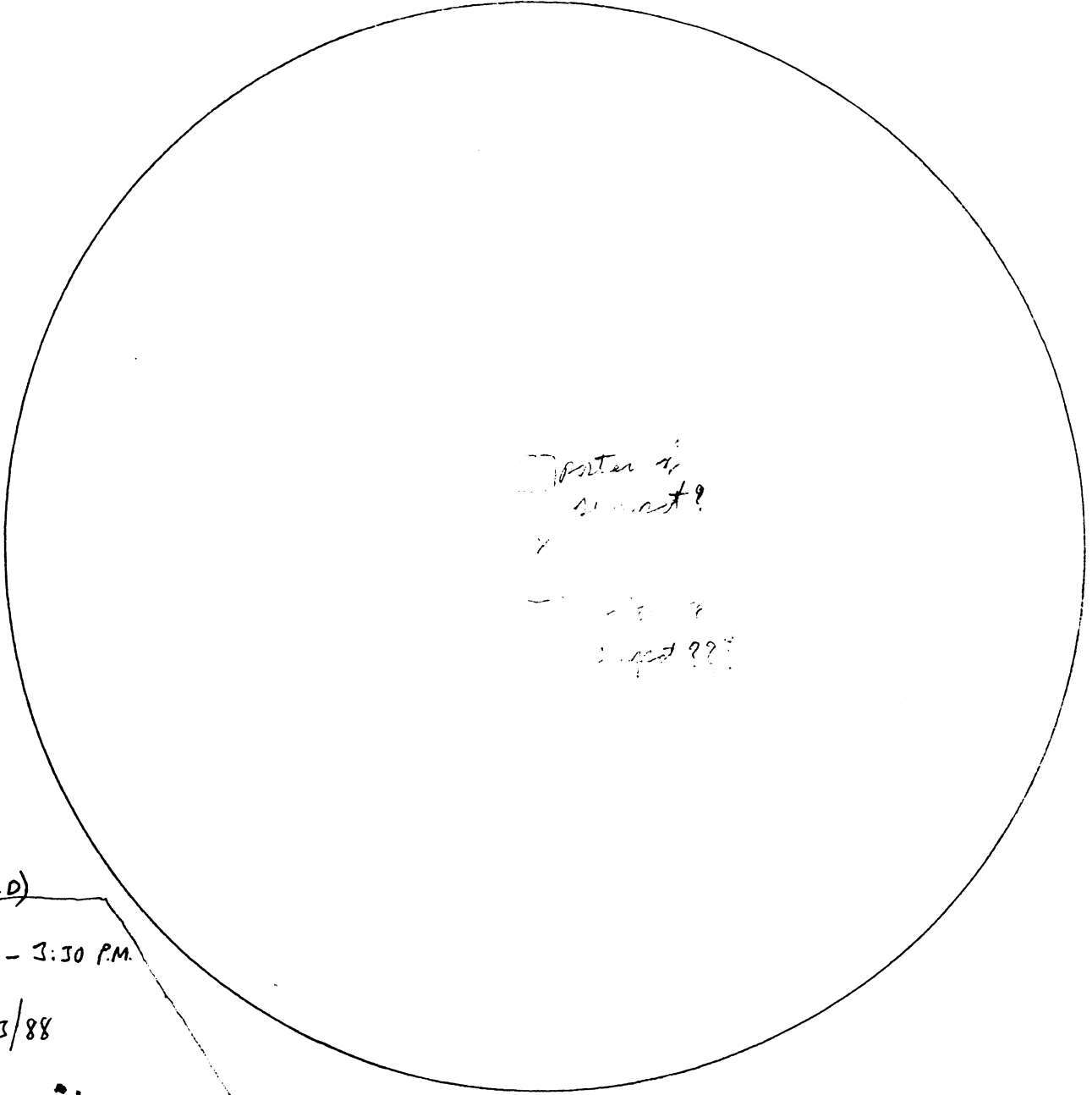


SHOULD BE
UNIFORM SHADE



OCT. 23/88

SMITHFIELD



water in stream?

cloud???

(14)

(SMITHFIELD)

3:00 PM - 3:30 PM.

10/23/88



100x f8 $\frac{900mm}{9mm}$

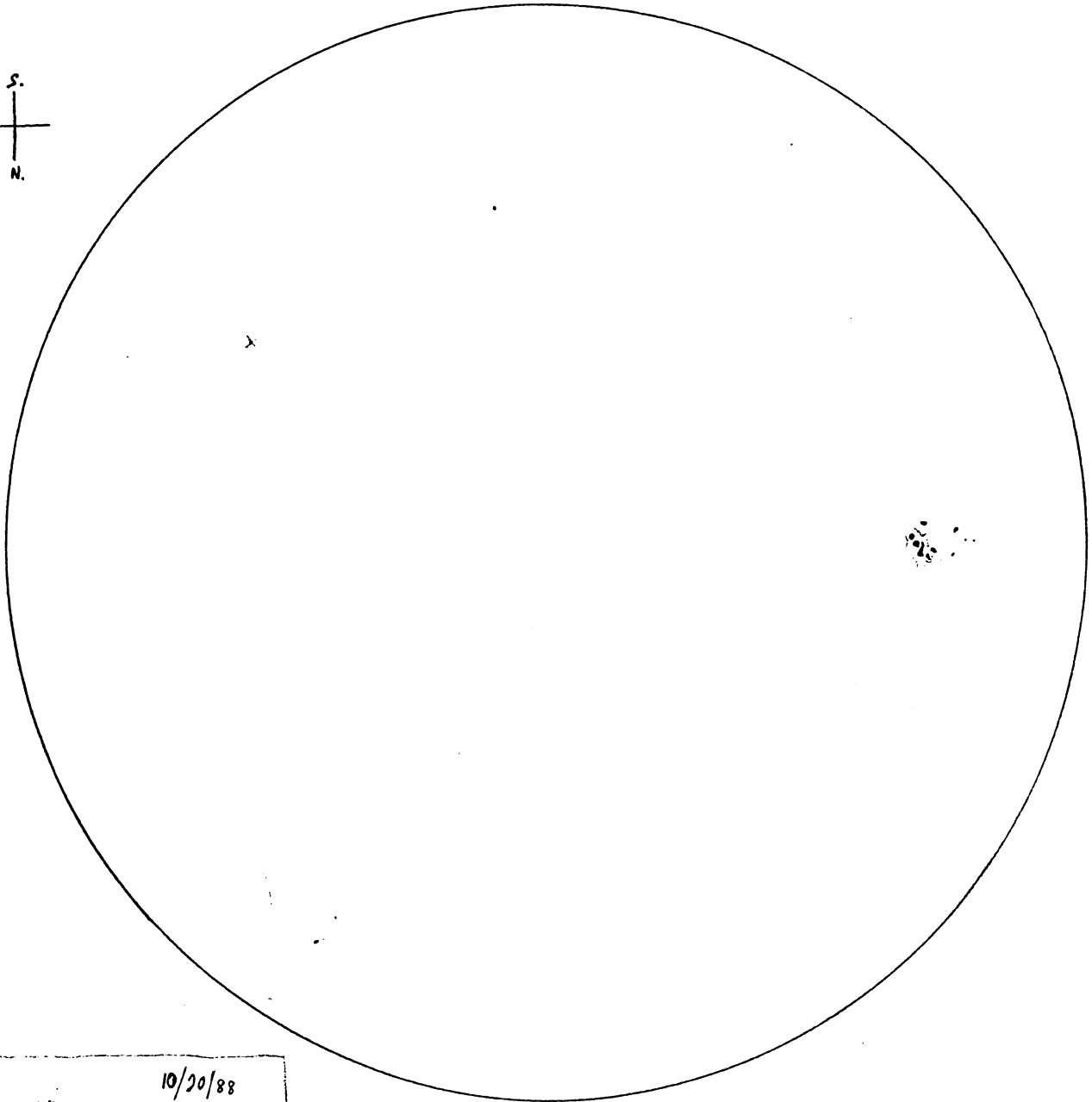
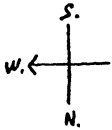
CLEAR PATCHES IN BETWEEN
 60% CLOUDS, → THICKENING
 OVERCAST

(30)

OCTOBER 20/88
(COBBOURG)

11:45 AM - 12:15 PM E.D.T
SKIES CLEAR WITHIN THE SUNS AREA.
VARIABLE BREEZE, WEEDS MOVE AND SMALL BRANCES MOVE.
NO GRAIN OBSERVED.

f8 $\frac{900\text{mm}}{25\text{mm}}$



13



10/20/88
12:15 - 1:00 PM E.D.T.

f8 $\frac{900\text{mm}}{9\text{mm}}$

100x

TOO HIGH POWER.
VIEW SLURRY 60% OF TIME.
TELESCOPE VIBRATED
BECAUSE OF BREEZE.

30

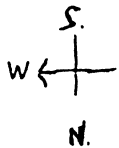
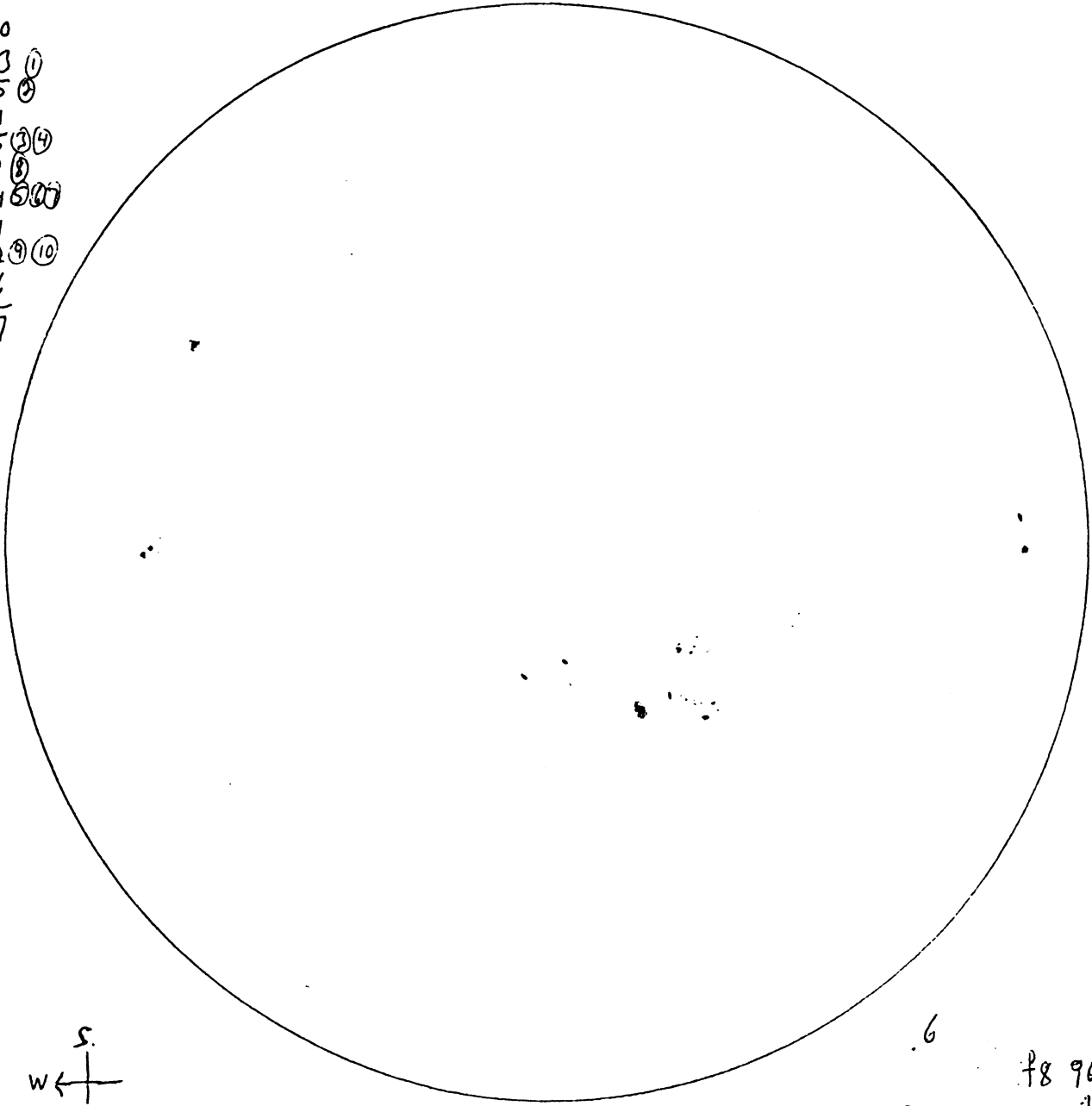
SEPT. 24/88 4:00 - 5:00 PM. E.D.T.
 THIN HAZE AND CIRROSTRATUS CLOUDS IN SUN'S AREA
 5:00 PM → HAZE DISAPPEARED, VERY THIN CIRROUS CLOUD PATCHES

VISUAL SPOT COUNT
 $\frac{900 \text{ mm}}{25 \text{ mm}}$

SEEING: $\frac{8}{10}$; TRANSPARANCY $\frac{9}{10}$

SPOT COUNT $(10 \times 10) + 67 = 167$

10x10 = 100
 + 3 (1)
 5 (2)
 1
 5 (3) (4)
 10 (8)
 24 (5) (10)
 11
 2 (9) (10)
 + 6
 167



φ 8 900 mm
 25 mm

(12)

(1) 3

(3) (4)
 5

(8) 10

(10) 2
 (9) 2

(2) 5

(5) (6) (7)
 24

11

↓
 CLOUDS

METHOD USED

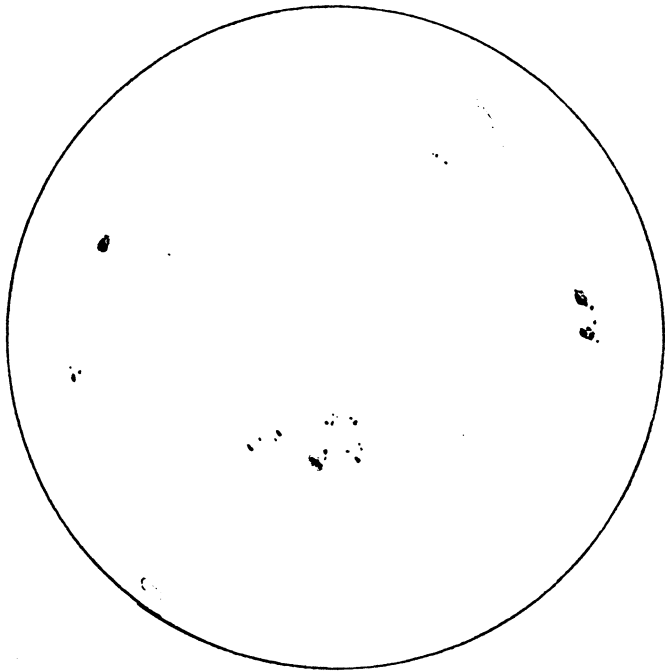
(1) SPOT GROUP: $(10 \times 1) + 6 = 16$
 + 5 INDIVIDUAL SPOTS
 16 TOTAL SPOT COUNT

Group # (12) 6 spots
 (EX) $(10 \times 1) + 6 = 16$

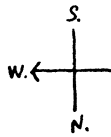
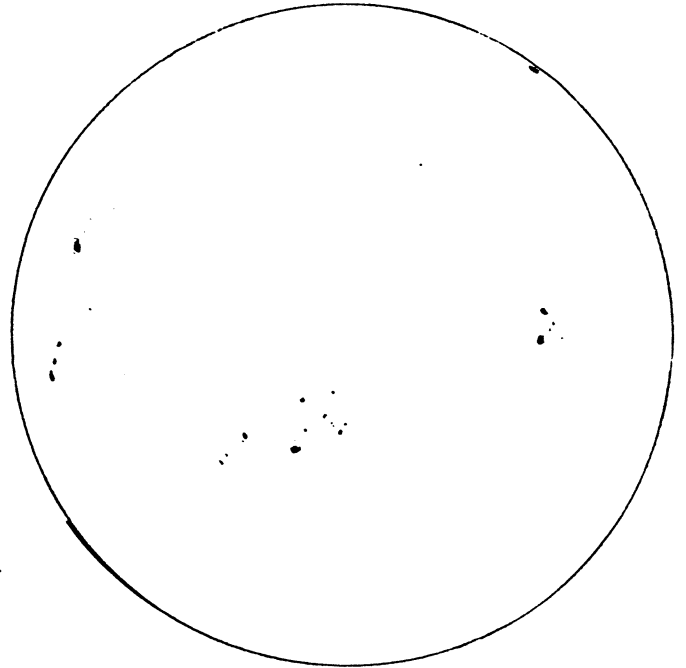
SPOTS OBSERVED,
 NOT NECESSARILY DRAWN

30

SEPT. 25 4:00-4:35 P.M. EDT
 SKIES VERY CLEAR
 SEEING $\frac{7}{8}$; TRANSP. $\frac{9}{10}$
 (TURBULENCE
 ALONG LIMB)

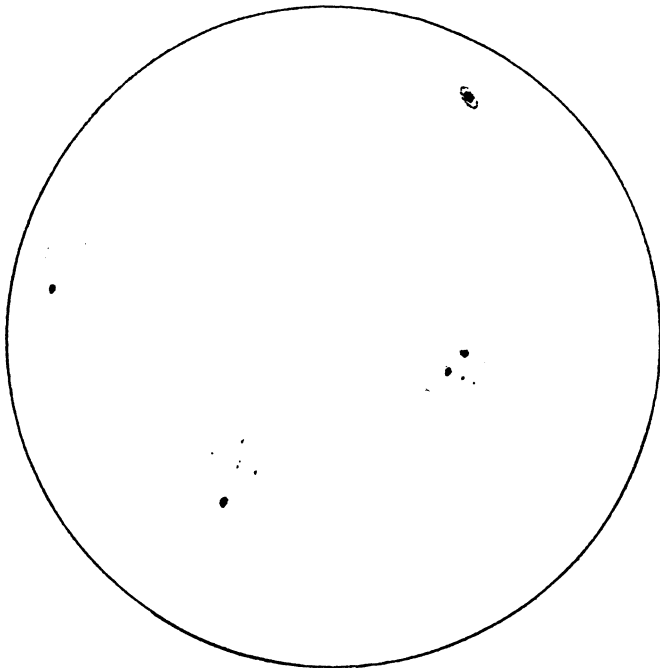


SEPT. 26 12:35 P.M. EDT.
 SKIES CLEAR
 SEEING $\frac{4}{5}$; TRANSP. $\frac{4}{5}$

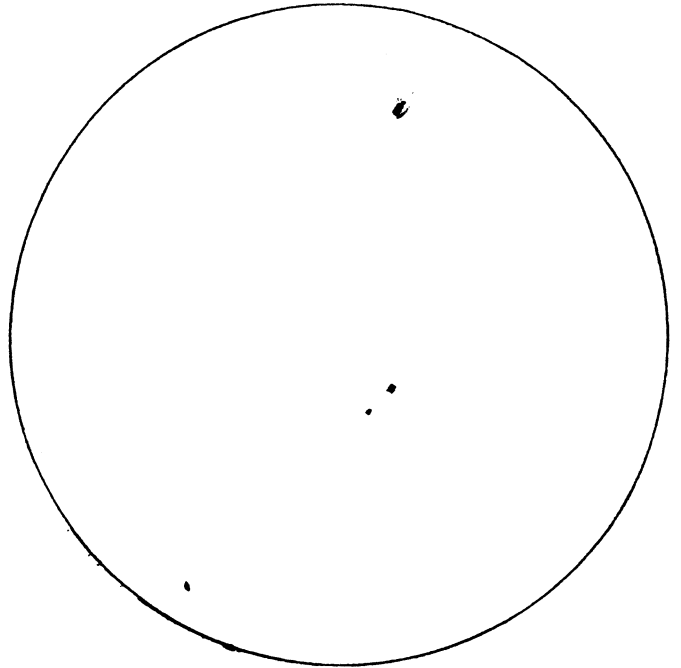


SEPT. 27/88 1:00 P.M. E.D.T.
 SKIES CLEAR WITH THIN HAZE BANDS
 RAPID DRAWING; WINDY, MEDIUM
 BRANCHES MOVE

+ 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$

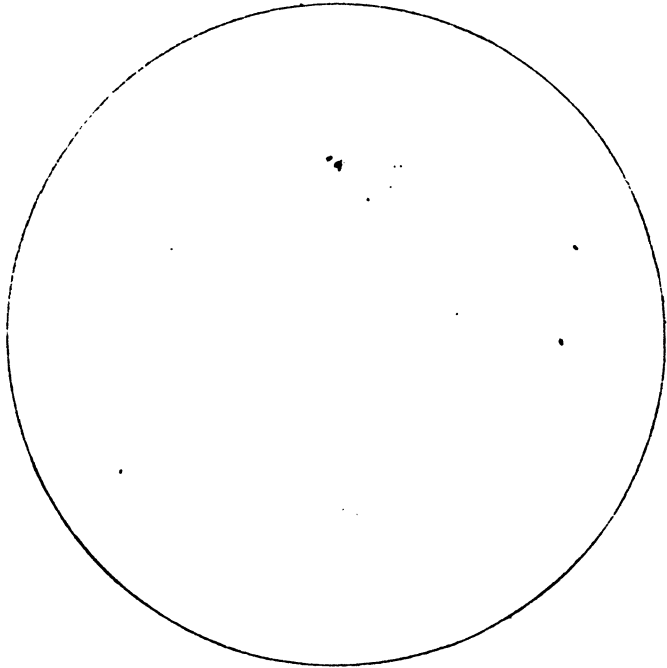


SEPT. 28 1:40 PM
 SEEING IMPAIRED BY BROKEN CLOUD PECK
 RAPID DRAWING

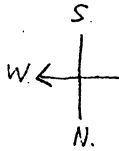
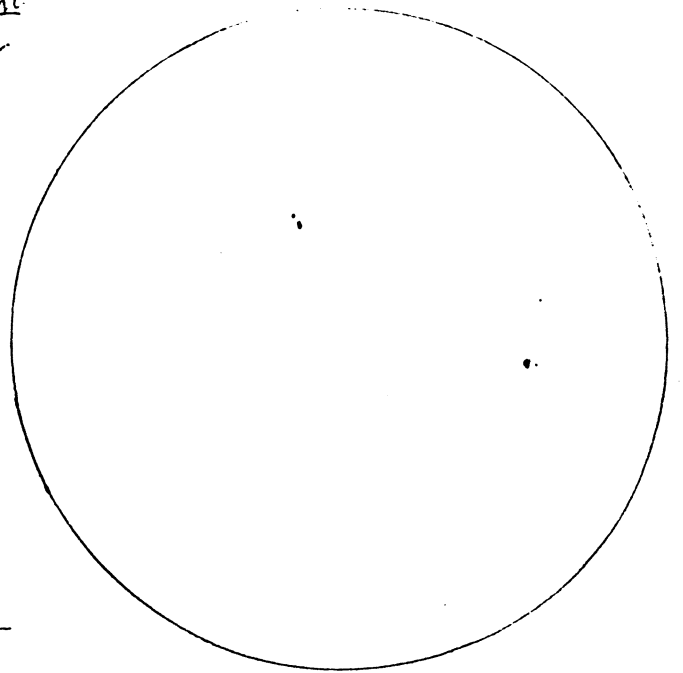


SEPT. 9 5:30 P.M. EDT.
8th CONCESSION, VALENS RD.
SKIES CLEAR

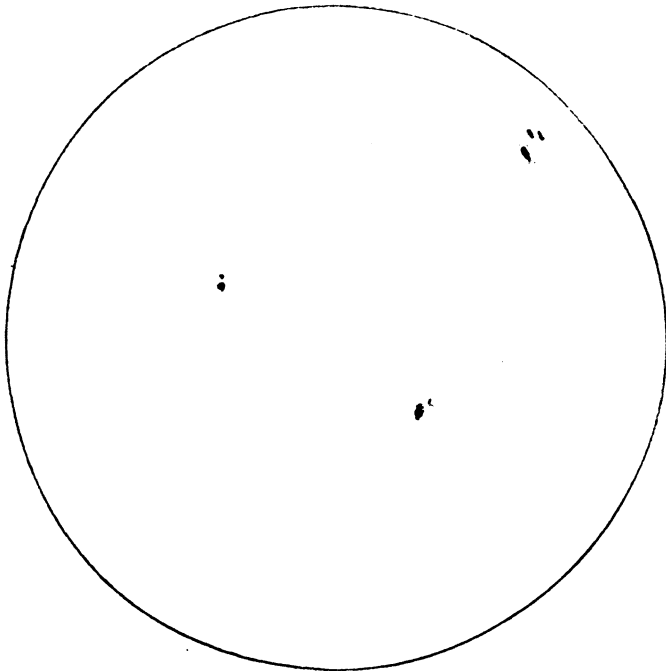
f8 $\frac{900\text{mm.}}{25\text{mm.}}$



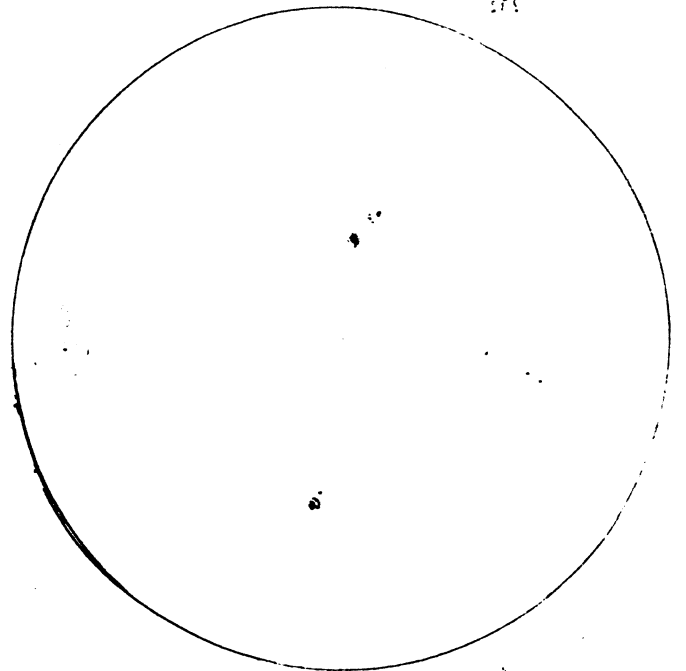
SEPT 10 3.00 PM EDT
DRAYTON, CONESTOGO PARK
HIGH HAZE WITH CIRRO STRATUS CLOUDS
↑ ↑ ↑



SEPT. 12 12:30 P.M. E.D.T.
SKIES HAZY WITH HIGH CLOUD PATCHES
SEEING $\frac{4}{5}$; TRANSP. $\frac{5}{10}$



SEPT 15/22 12:35 PM E.D.T
SKIES CLEAR, WHITE CLOUD BANDS ALONG HORIZON
SEEING $\frac{4}{5}$; TRANSP. $\frac{4}{5}$
GRAIN EVIDENT OVER ENTIRE SOLAR DISK
???



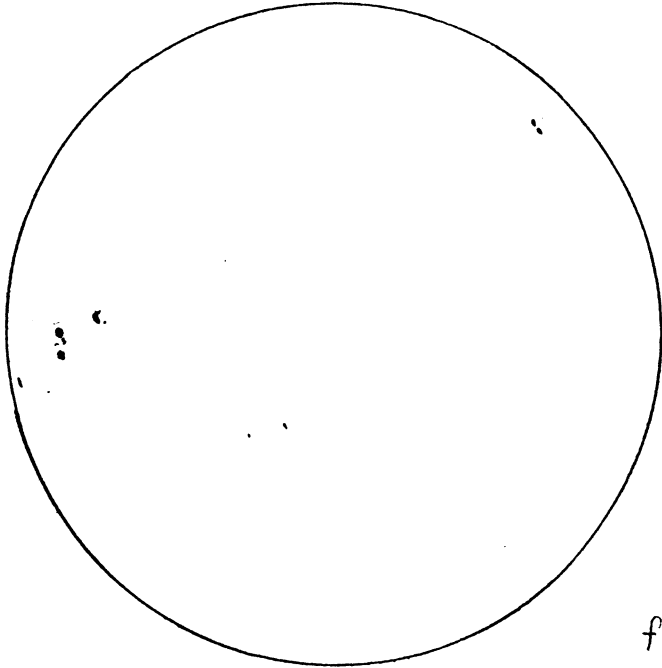
MON !!

SEPT. 5/88 3:00 PM EDT

GOOD TRANSPARENCY INTERRUPTED BY FAST MOVING CLOUDS

TRANSP. $\frac{7}{5}$

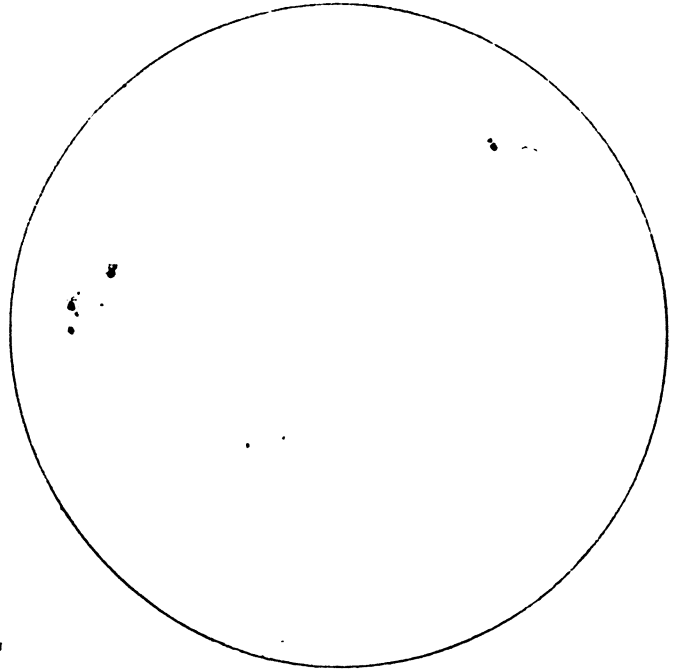
SEEING $\frac{7}{5}$



SEPT. 6/88 2:00 PM EDT

SKIES CLEAR WITH DARK CUM CLOUD PATCHES

TRANSP $\frac{4}{5}$; SEEING $\frac{5}{10}$ (POOR RESOLUTION)

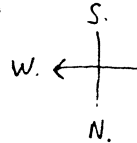


f8 $\frac{900 \text{ mm}}{25 \text{ mm}}$

SEPT. 7 6:10 PM EDT

SKIES CLEAR

TRANSP. $\frac{4}{5}$; SEEING $\frac{4}{5}$ GRAIN READILY OBSERVED

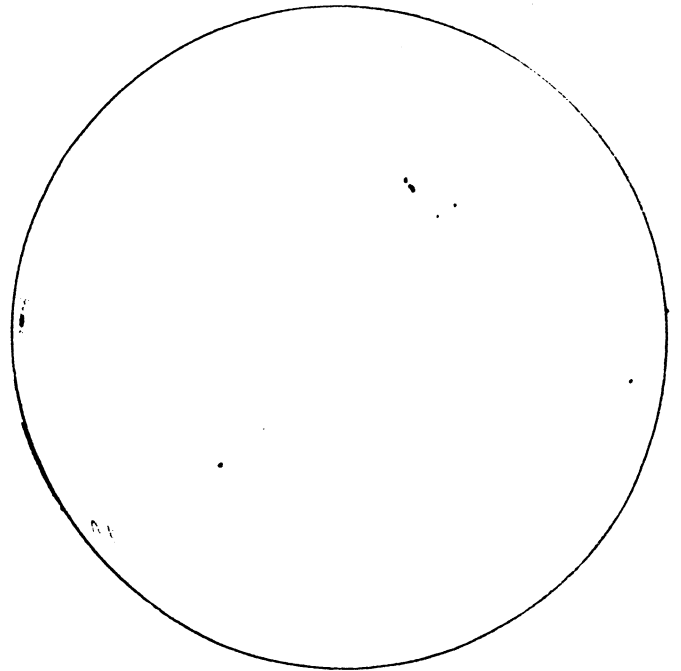
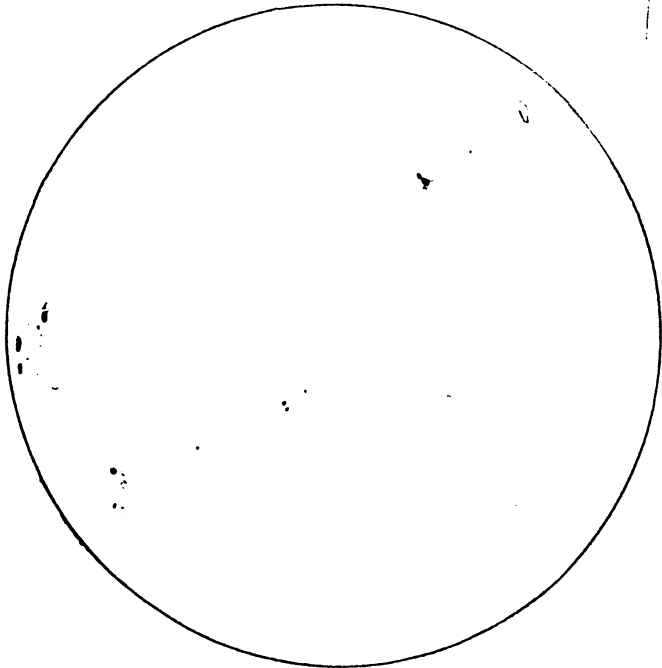


DUNPURN PARK

SEPT 8/88 1:35 P.M. E.D.T.

SKIES CLEAR; GRAINY STRUCTURE EVIDENT

SEEING $\frac{7}{5}$; TRANSPARENCY $\frac{9}{10}$



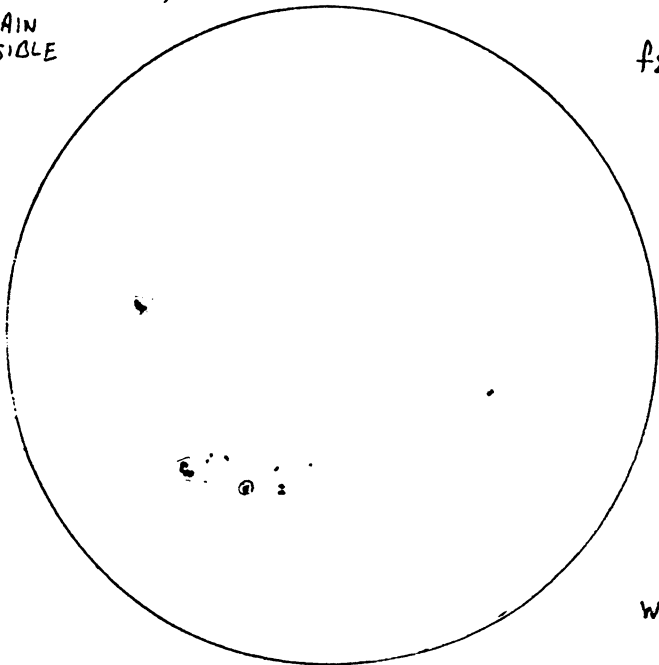
FACULAE MERGING INTO GRAIN

28

AUG. 16/88 12:30 PM E.D.T.

SKIES CLEAR, CLOUD BANK APPROACHING FROM WEST
SEEING $\frac{1}{10}$, TRANSP. $\frac{8}{10}$

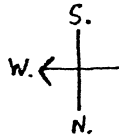
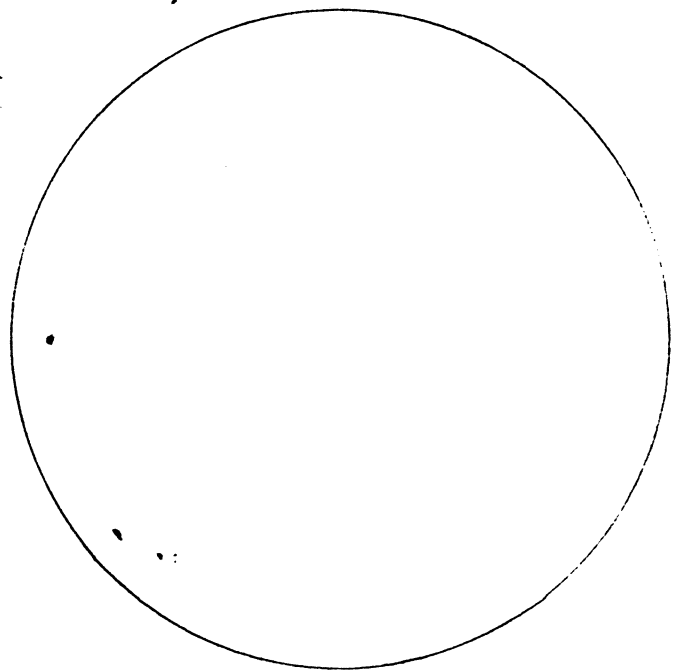
GRAIN
VISIBLE



f8 $\frac{900 \text{ mm.}}{25 \text{ mm.}}$

AUG. 18 12:40 PM E.D.T.

SKIES CLEAR. WISPY CLOUDS ALONG SOUTH HORIZON
SEEING $\frac{1}{10}$; TRANSP. $\frac{8}{10}$

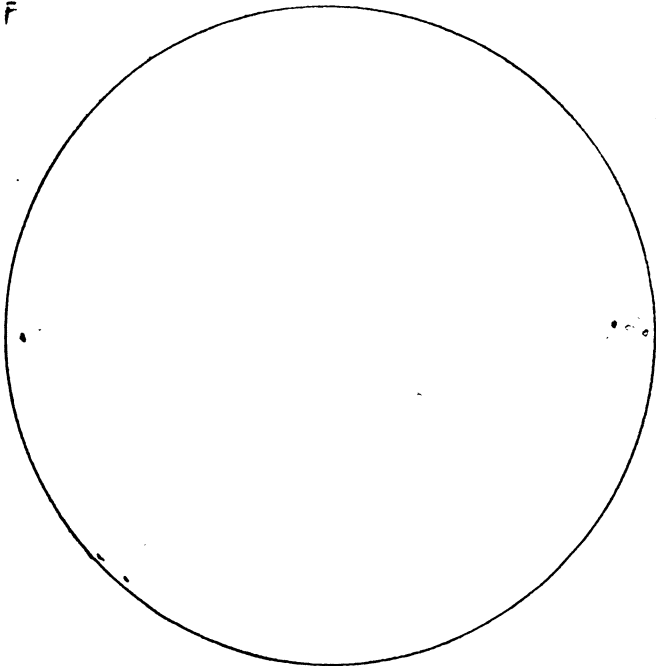


← WIDTH OF SPOT GROUP

AUG. 19 12:35 PM E.D.T.

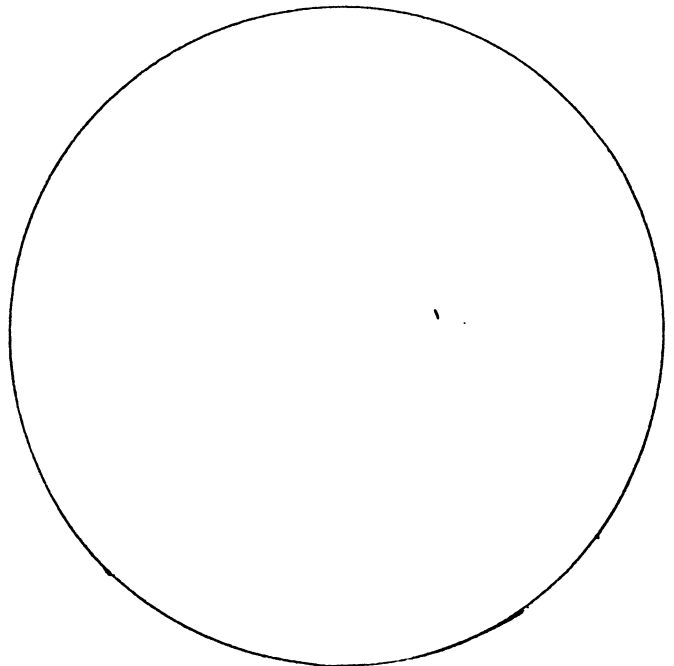
CLEAR SKIES; CUMULIMOUS CLOUD BANKS ALONG WEST+ SOUTH HORIZON

21°C
69°F



AUG. 21/88 5:30 PM E.D.T.

SKIES CLEAR
SEEING $\frac{4}{10}$; TRANSP. $\frac{8}{10}$?
(RIPPLES) (FUZZY)

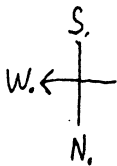
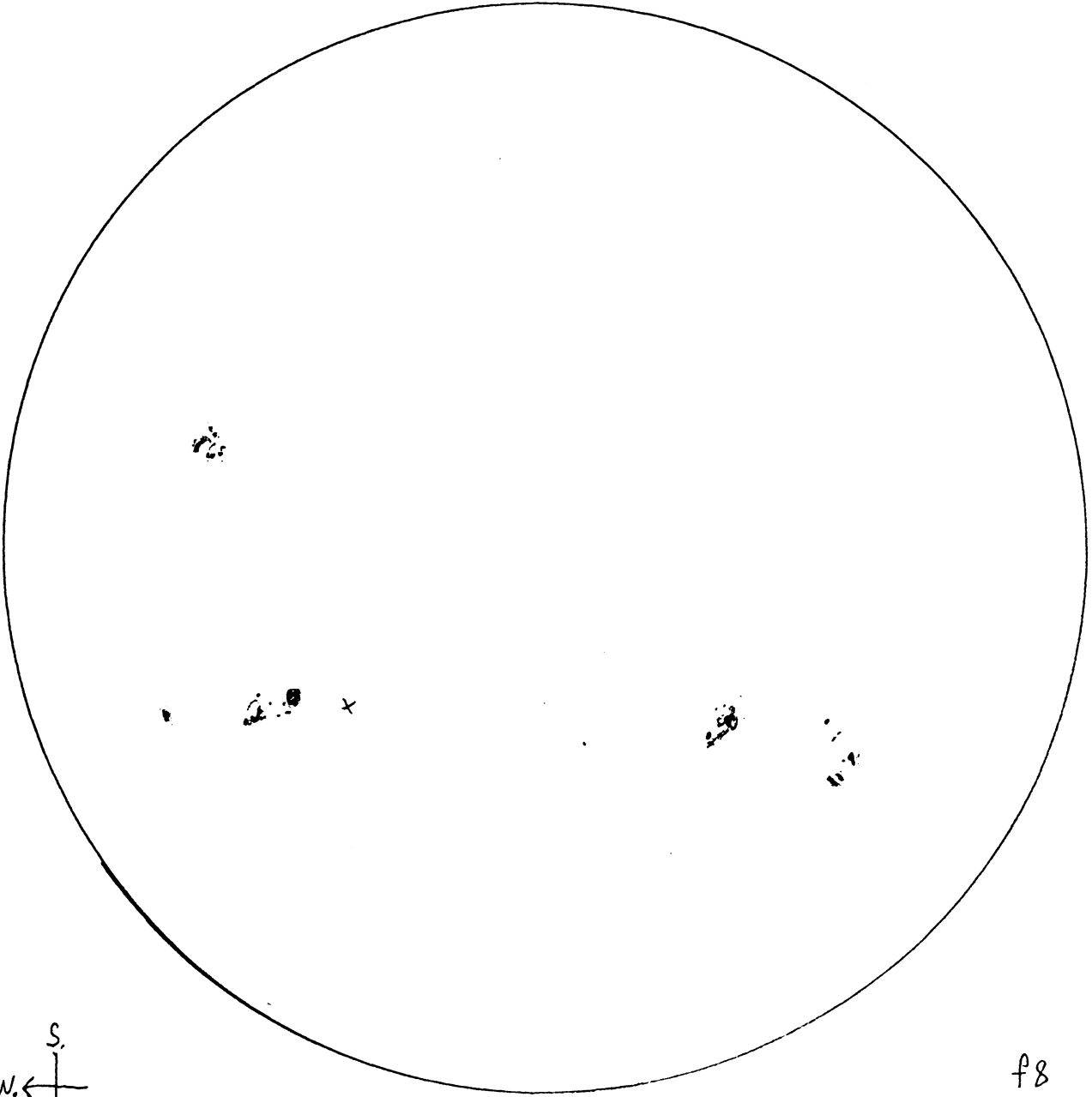


JULY 31/88 1:35 → 2:40 PM.

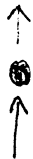
HIGH HAZY PATCHES IN BETWEEN CLEAR SKIES
(AND CUMULOUS CLOUDS)

SEEING $\frac{7}{10}$ TRANSPARENCY $\frac{6}{10}$

GRAIN PLAINLY VISIBLE
DURING GOOD SEEING



f8 $\frac{900mm}{25mm}$



SPOT SHOULD
BE LOCATED
HERE

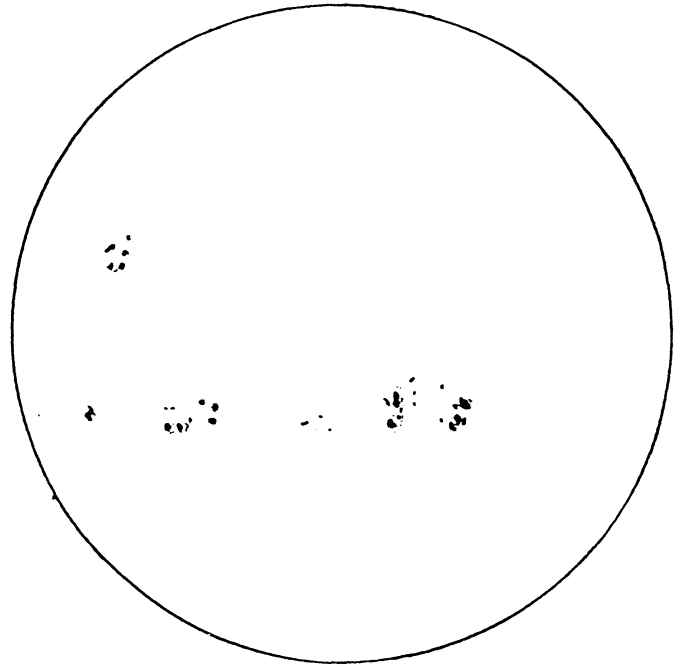
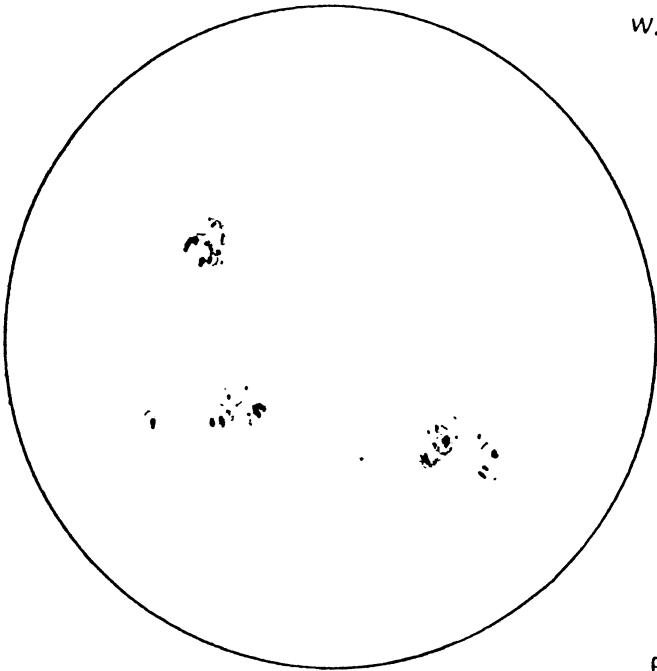
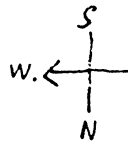
DRIVE PERFORMED POORLY

(11)

(26)

JULY 31/88 5:00 PM E.D.T.
 SLIGHT HAZE IN CLEAR SKIES
 GRAIN VISIBLE WHEN TELESCOPE JARRED
 SEEING $\frac{6}{10}$; TRANSP. $\frac{7}{10}$
 (RIPPLES)

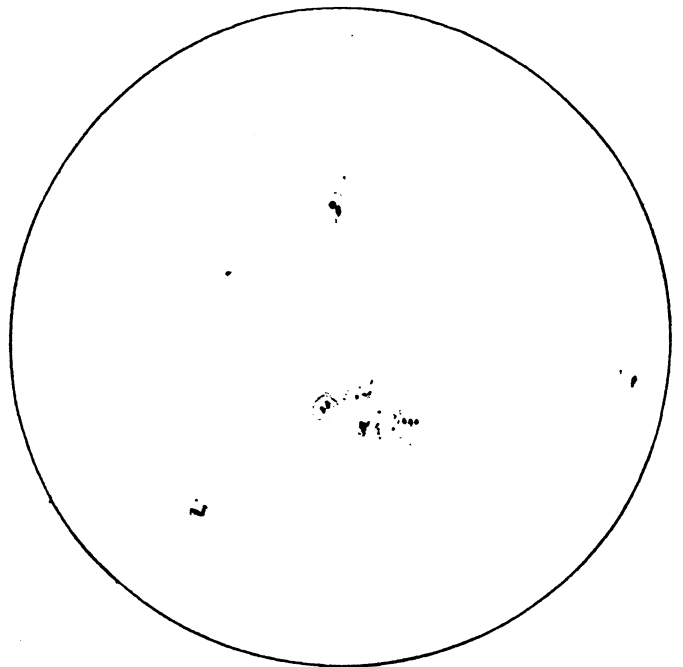
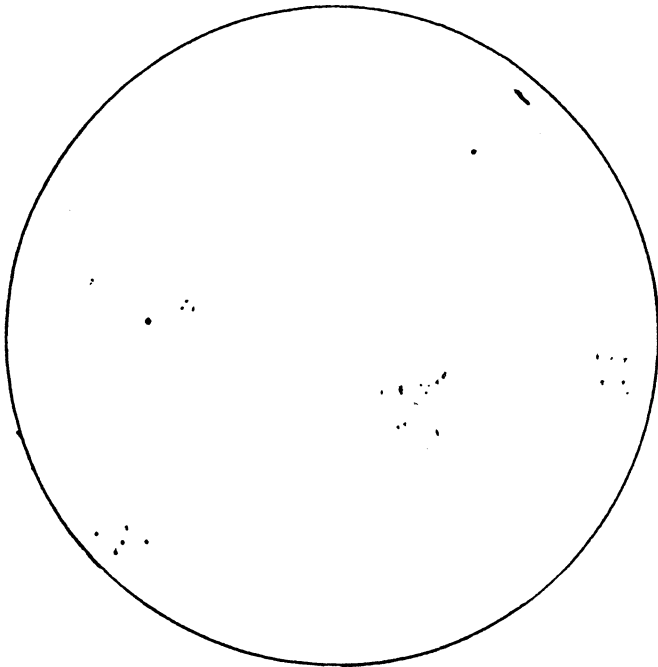
AUG. 1/88 4:00 P.M E.D.T.
 HAZE IN CLEAR SKIES
 SEEING $\frac{8}{10}$; TRANSP. $\frac{6}{10}$



f8 $\frac{900\text{mm}}{25\text{mm}}$

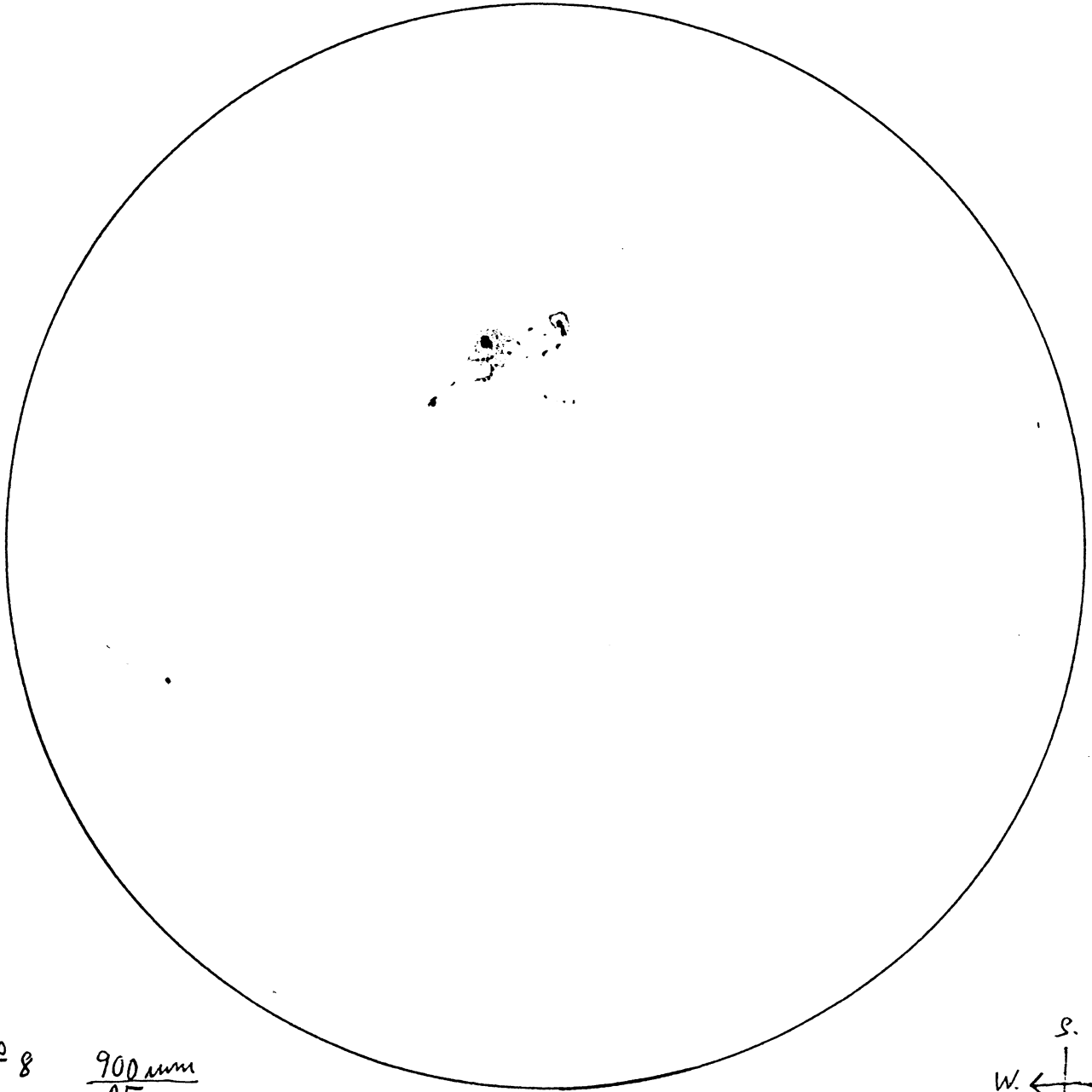
SKETCH:
 VERY RAPID DRAWING
 AUG. 8/88 12:40 P.M.
 SKIES CLEAR WITH ISOLATED THIN
 CLOUD STREAKS
 SEEING $\frac{7}{10}$; TRANSP $\frac{8}{10}$

AUG. 12/88 12:40 P.M. 31°C
 HEAT HAZE WITH ISOLATED CUM CLOUDS
 SEEING $\frac{8}{10}$ TRANSP. $\frac{8}{10}$
 GRAIN JUST BARELY VISIBLE

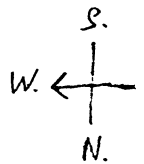


JULY 17/88 3:00 - 3:20 P.M. E.D.T.

SKIES CLEAR ; TURBULENT SEEING ; SEEING $\frac{5}{10}$
TRANSPARENCY $\frac{4}{5}$
GRAIN JUST BARELY VISIBLE



f 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$



(10)

(25)

JULY 6/88 12:40 P.M. E.D.T.

SEEING $\frac{4}{5}$
TRANSP. $\frac{3}{5}$

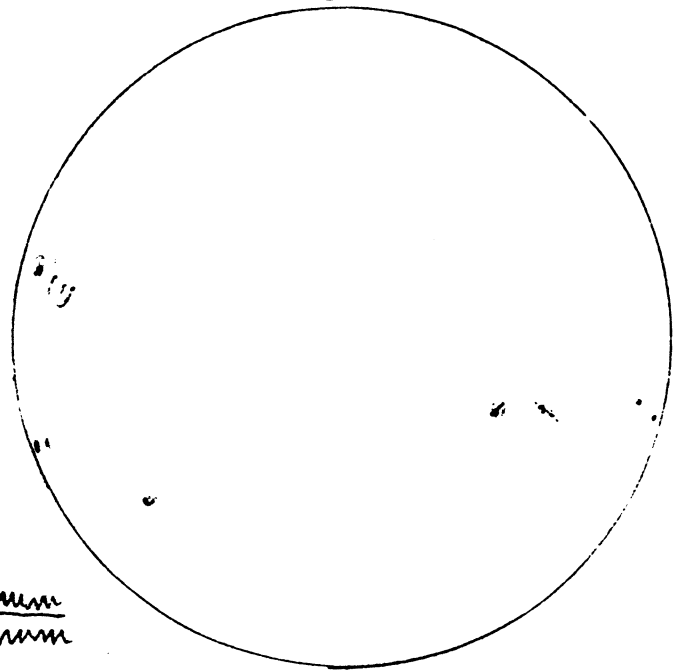
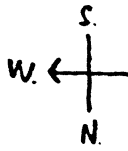
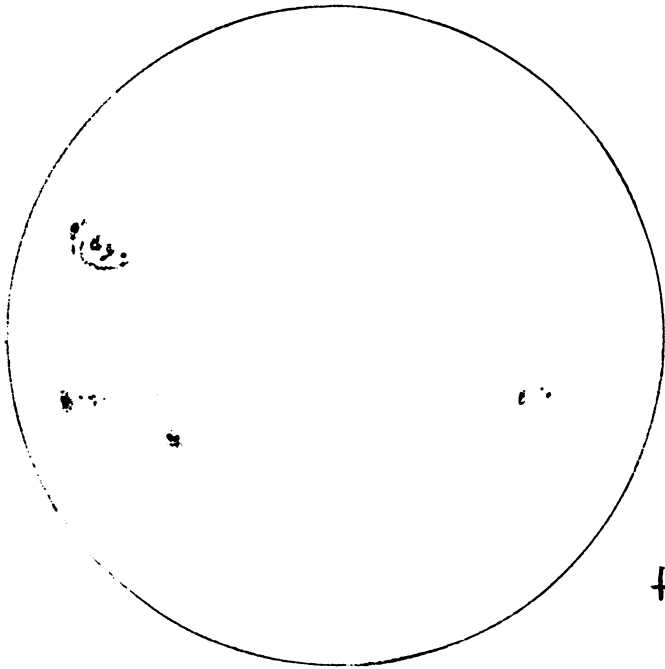
THIN HAZY STREAKS
IN CLEAR SKIES

JULY 7/88 12:30 P.M. E.D.T.

HEAT HAZE

SEEING $\frac{4}{5}$; TRANSP. $\frac{3}{5}$

TEMP. 97°F. (MIKE W)



f8 $\frac{900\text{mm}}{25\text{mm}}$

GRAIN VISIBLE OVER ENTIRE DISK

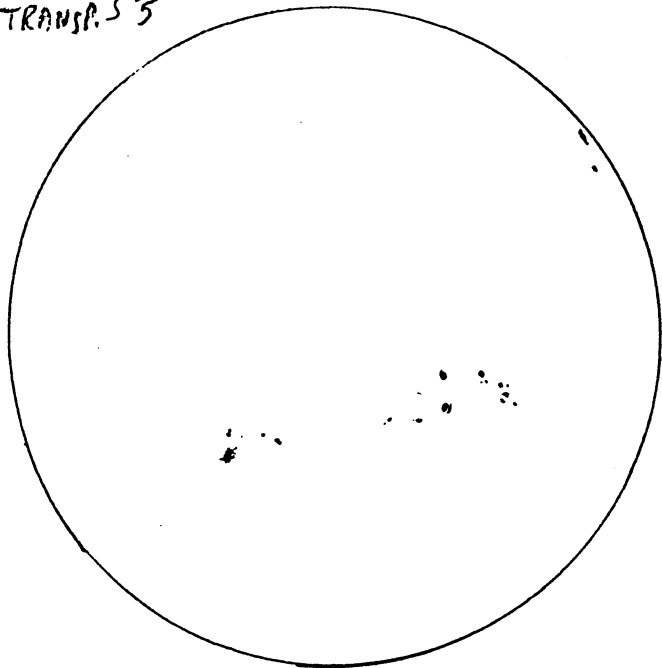
MONDAY!

JULY 11 12:40 P.M. E.D.T.

SKIES PARTLY CLEAR WITH CUM. CLOUDS

GRAIN GLIMPSED OVER ENTIRE DISK

SEEING $\frac{4}{5}$
TRANSP. $\frac{3}{5}$

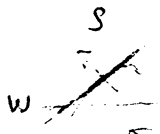
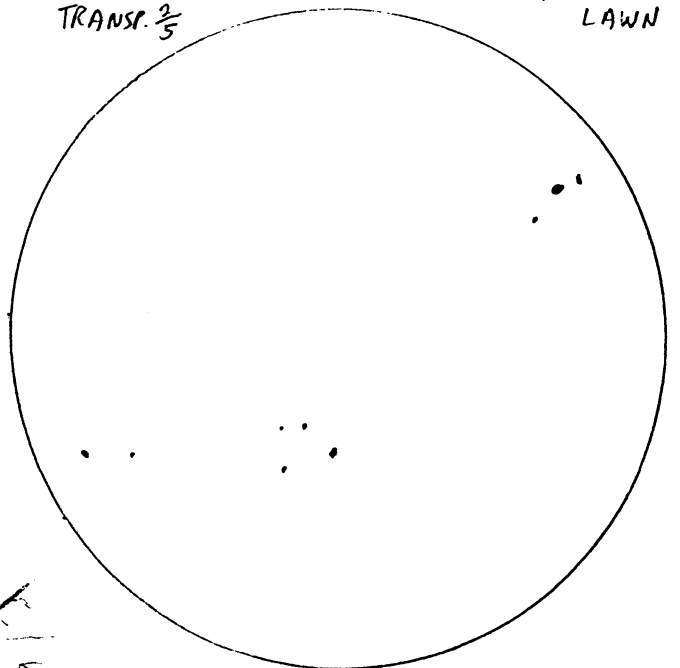


JULY 13 8:45 P.M. E.D.T.

SUN RE-APPEARED FROM BEHIND
CLOUD BAND.

SEEING $\frac{4}{5}$
TRANSP. $\frac{3}{5}$

OBSERVATORY
LAWN



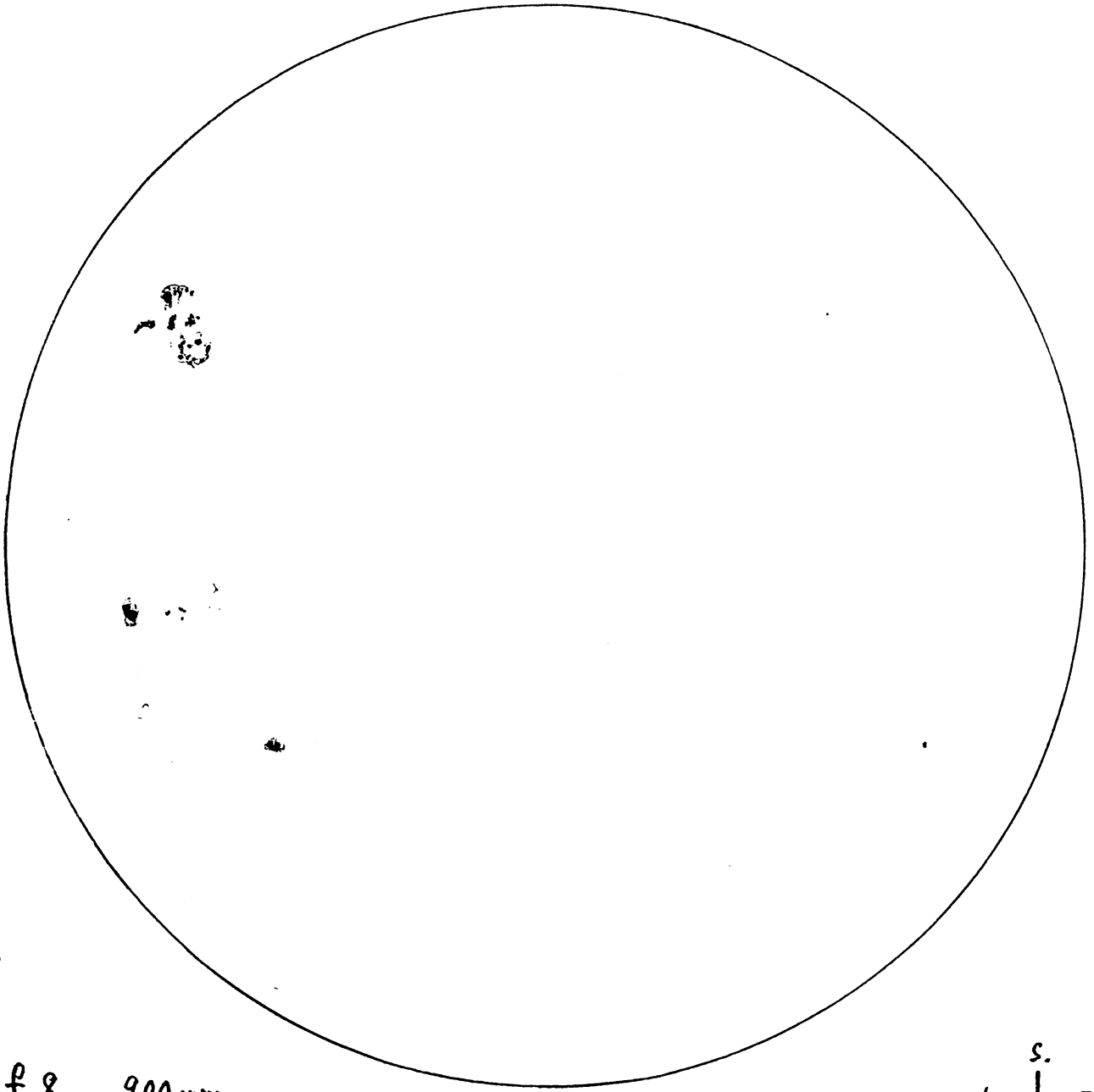
N. SUN 'TOUCHED' EDGE OF
HILLSIDE 9:50 P.M.

JULY 5/88 7:15 - 7:35 P.M. E.D.T.

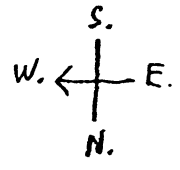
SKIES CLEAR WITH SLIGHT HAZINESS

SEEING $\frac{4}{5}$
TRANSPARENCY $\frac{4}{5}$

GRAIN OBSERVABLE ACROSS ENTIRE DISK



f 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$



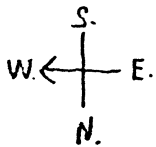
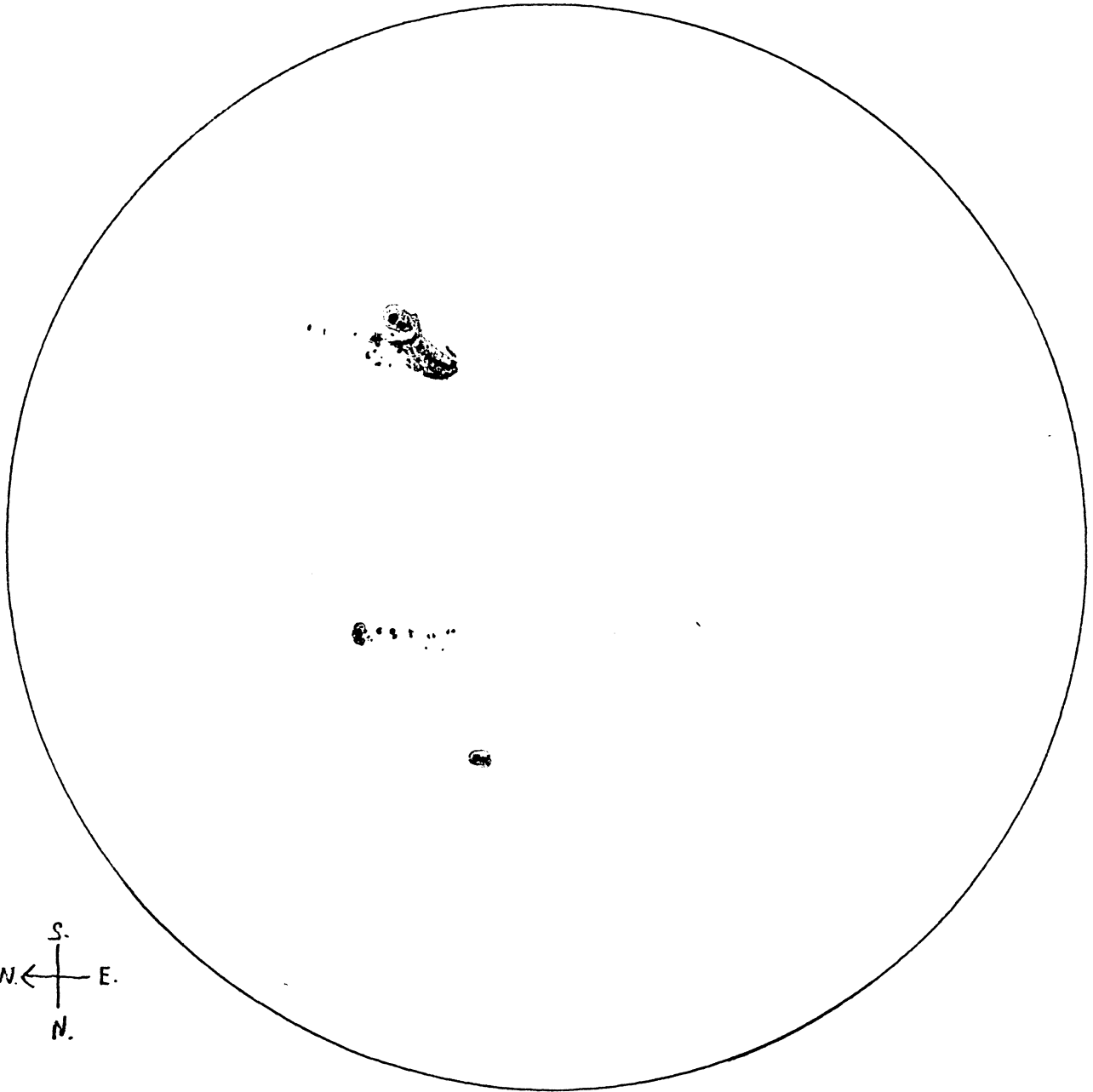
(9)

(24)

JULY 3/88 2:35-2:55 P.M. E.D.T.

CLEAR SKIES WITH WIDELY SCATTERED WHITE CLOUD PATCHES
GRAINY STRUCTURE NOT APPARENT

SEEING $\frac{5}{10}$ RIPPLES ALONG SUN'S
TRANSPARENCY $\frac{4}{5}$ LIME



f 8 $\frac{900 \text{ mm}}{85 \text{ mm}}$

UMBRA



PENUMBRA

{ AN ATTEMP HAS
BEEN MADE TO
DRAW THESE ACCURATELY.

{ FACULAE

{ NO ATTEMP TO DRAW THESE
ACCURATELY HAS BEEN MADE.

24

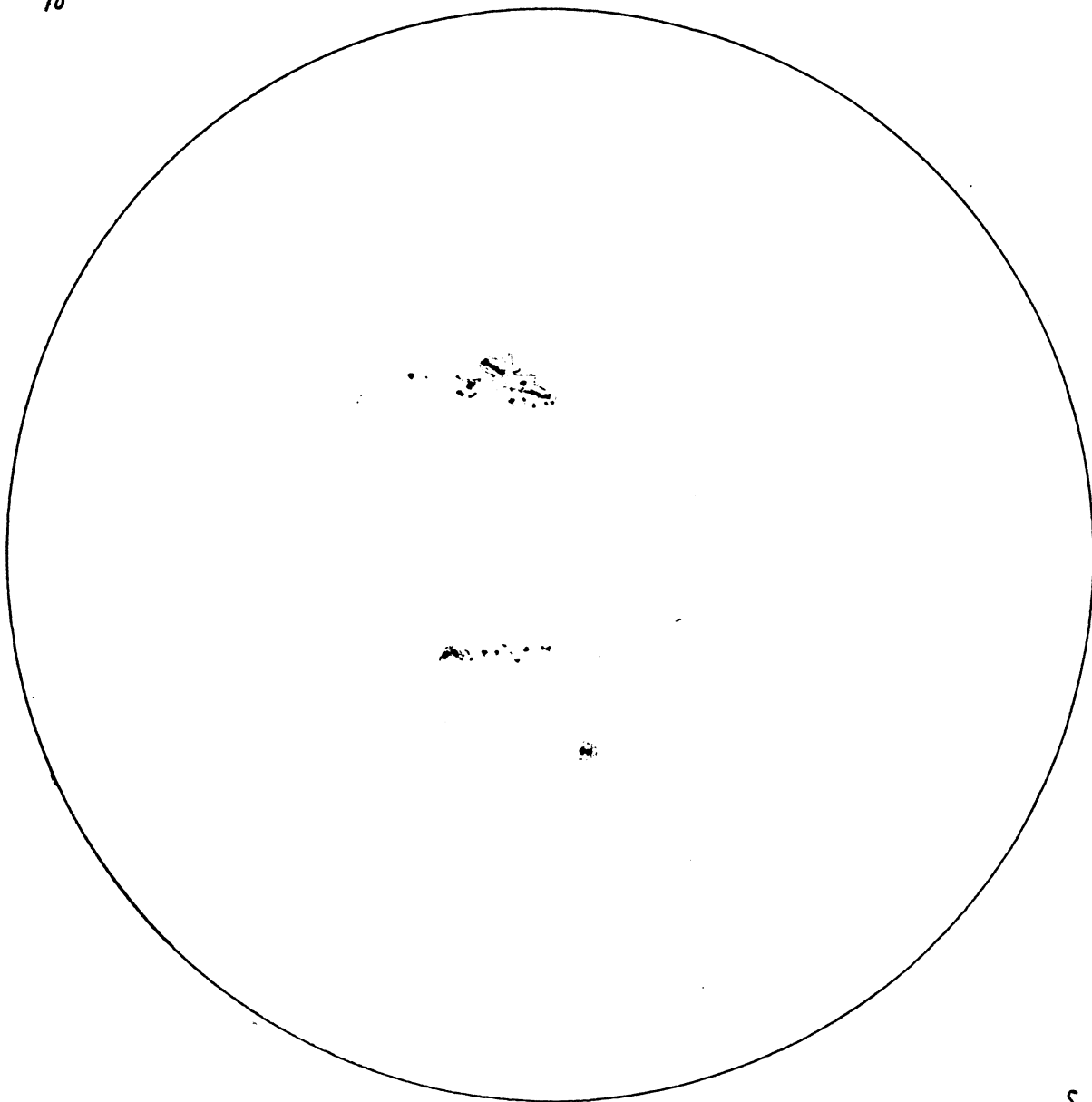
8

JULY 2 1988 2:10-2:30 P.M. E.D.T.

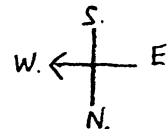
VERY THIN HAZE IN BETWEEN SCATTERED CLOUDS
DRILLIANT RING AROUND SUN

SEEING $\frac{4}{5}$
TRANSP. $\frac{9}{10}$

HINT OF GRAIN ALONG
EAST LIMB



f 8 $\frac{900 \text{ mm}}{25 \text{ mm.}}$

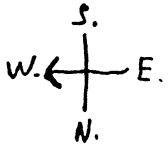


24

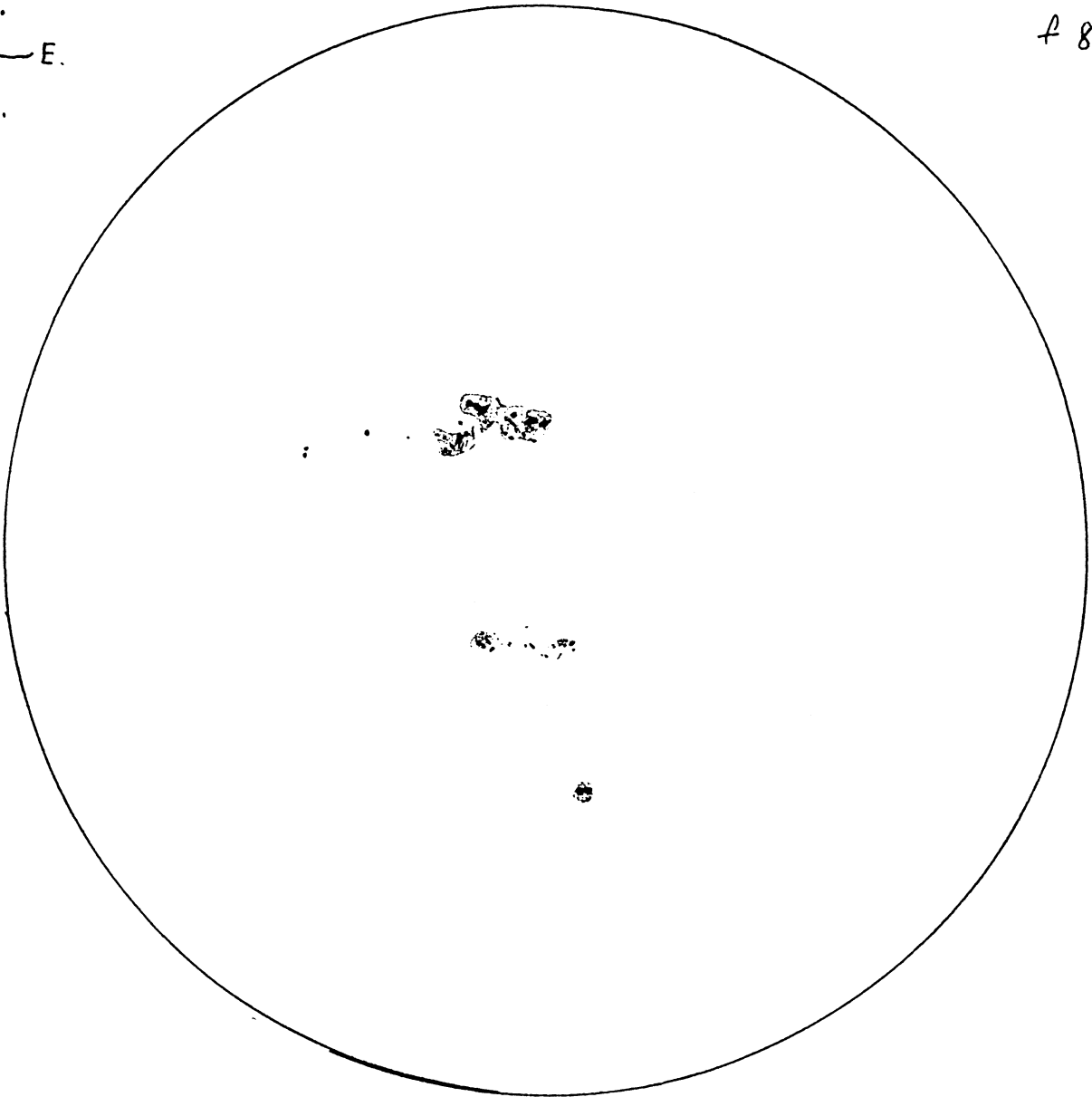
7

July 1/88 8:05-8:20 P.M. E.D.T.

SKIES CLEAR AFTER BEING MOSTLY CLOUDY DURING THE DAY
SEEING $\frac{4}{5}$ TRANSP. $\frac{9}{10}$



f 8 $\frac{900 \text{ min.}}{25 \text{ min}}$

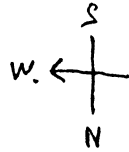


(6)

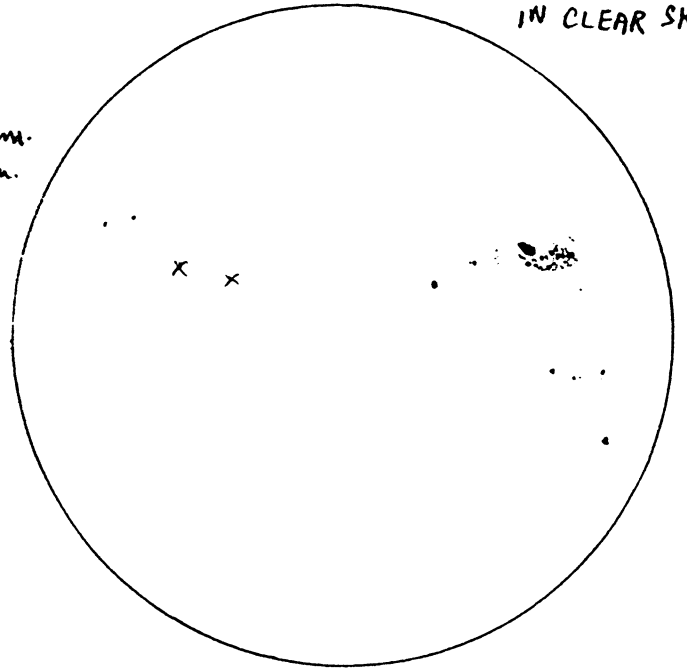
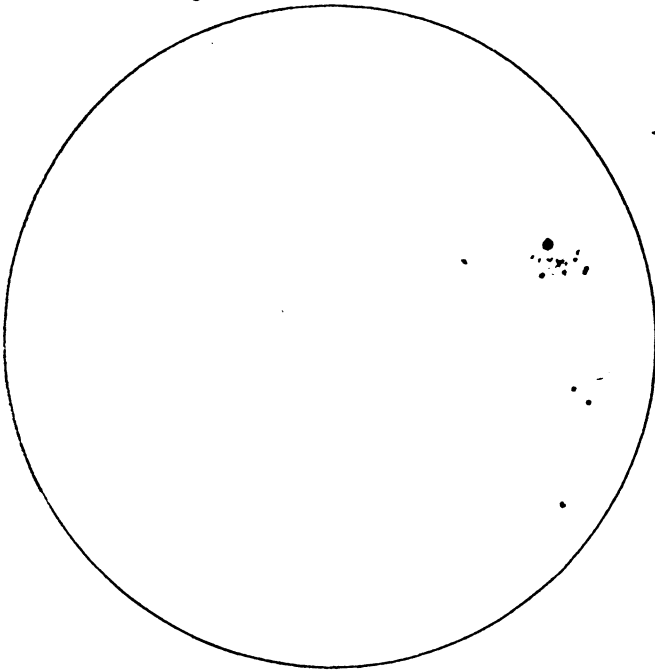
(24)

JUNE 27 8:20 P.M. E.D.T
 VERY RAPID DRAWING DUE TO
 APPROACHING CLOUD BANK
 TRANSP $\frac{2}{5}$. SEEING $\frac{9}{10}$

JUNE 28 12:20 E.D.T.
 RESOLUTION IMPAIRED BY VIBRATING
 TELESCOPE
 MEDIUM BRANCHES
 MOVE IN BREEZE
 CLOUD BANDS
 IN CLEAR SKIES

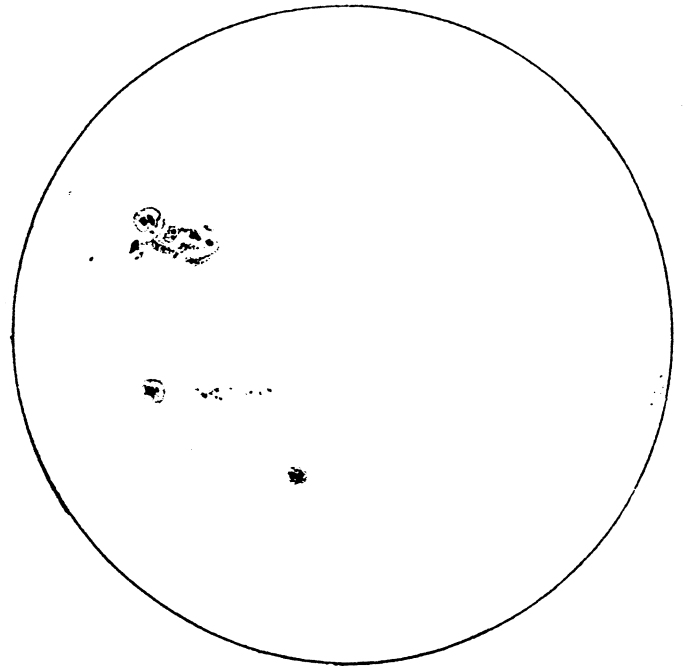
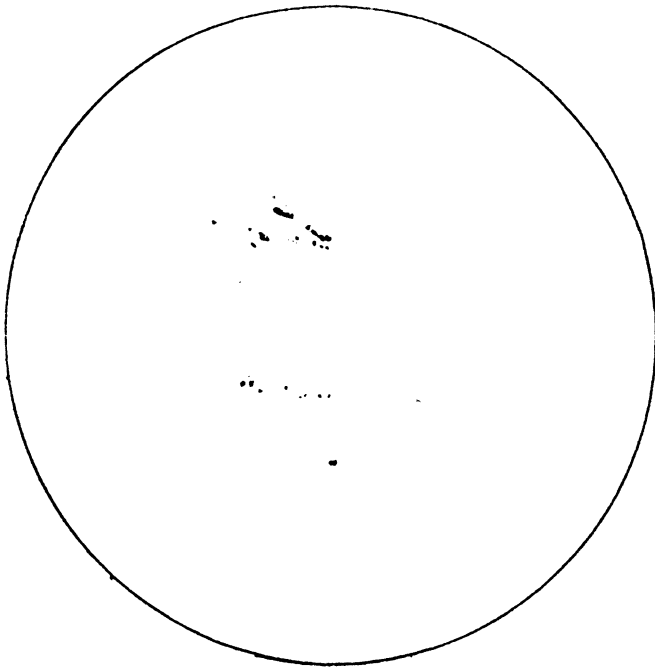


f 8 $\frac{900\text{mm.}}{25\text{mm.}}$



JULY 2/88 1:30 E.D.T.
 THIN HAZE IN BETWEEN CLOUD PATCHES
 SEEING $\frac{4}{5}$; TRANSPARANCY $\frac{2}{5}$ ($\frac{7}{10}$)
 RING AROUND SUN

JULY 4 12:40 P.M. E.D.T.
 WISPY CLOUDS IN CLEAR SKIES
 SEEING $\frac{4}{5}$ TRANSP. $\frac{7}{10}$



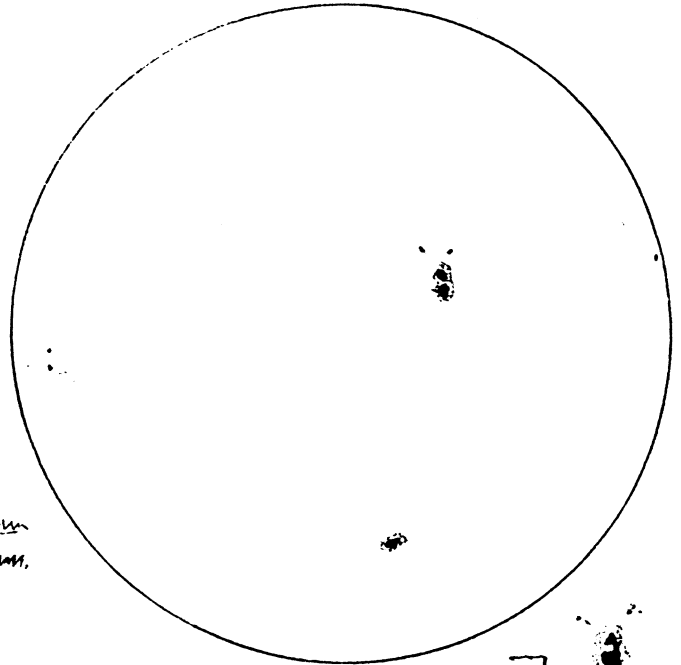
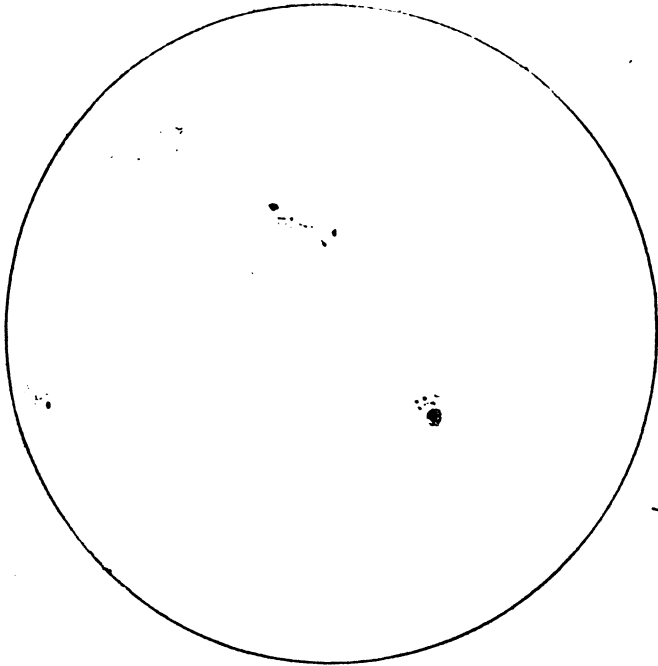
SAW SPOT VISUALLY
 WITH FILTER 7/2/88 2:00 P.M. E.D.T.



24

JUN. 11/88 2:00 P.M.
 HAZY STREAKS IN BLUE SKY
 TRANSP. $\frac{3}{5}$; SEEING $\frac{4}{5}$
 NO GRAIN OBSERVED

JUNE 18 5:40 P.M. E.D.T.
 SKIES CLEAR
 TRANSP. $\frac{4}{5}$; SEEING $\frac{4}{5}$ NO GRAIN OBSERVED



f8 $\frac{900\text{mm}}{25\text{mm}}$

JUNE 19 4:15 P.M. E.D.T. CLEAR SKIES
 WITH THIN WISPY CLOUD PATCES
 TRANSP. $\frac{9}{10}$ SEEING $\frac{9}{10}$
 GRAIN VISIBLE OVER ENTIRE SURFACE

JUNE 23 8:50 P.M. E.D.T. 100 X
 SEEING $\frac{3}{5}$
 TRANSP. $\frac{3}{5}$
 THIN CLOUD BANDS ACROSS SUN

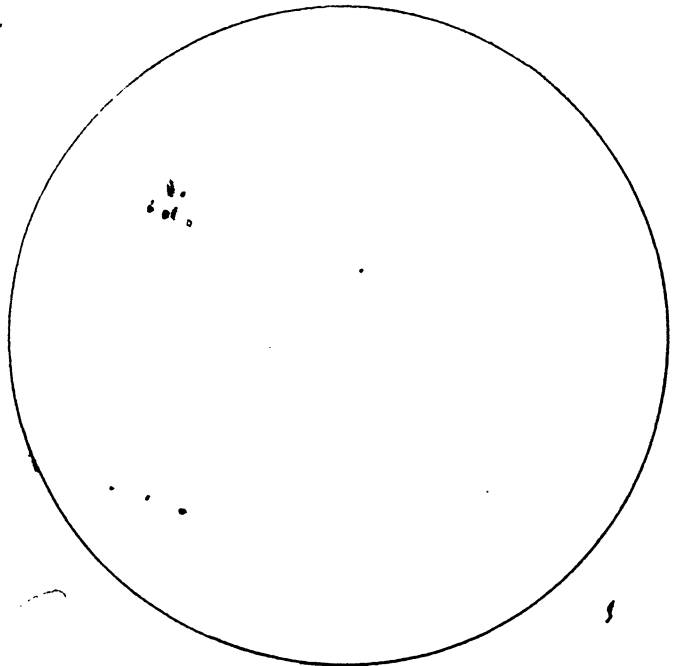
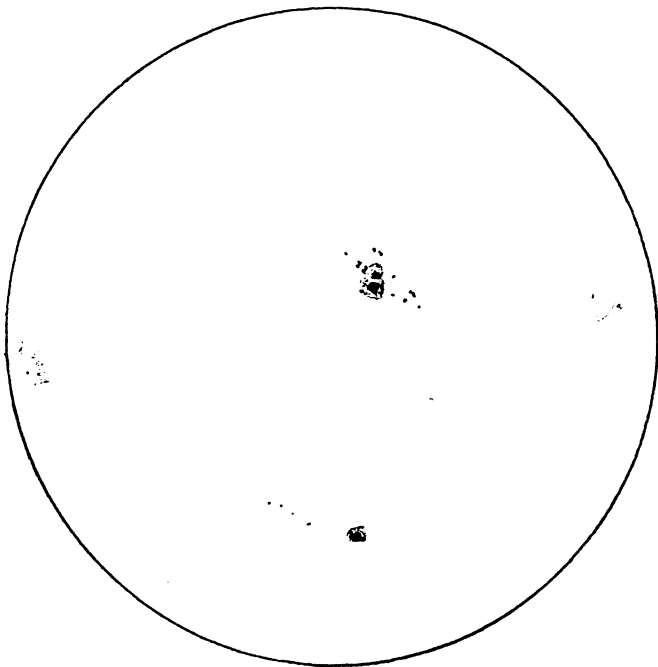
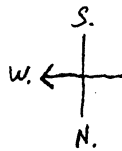


IMAGE BARELY RIPPLED AT 150X

150x

$\frac{960\text{mm}}{6\text{mm}}$

SUN APPEARED
 FLATTENED
 ON BOTH SIDES

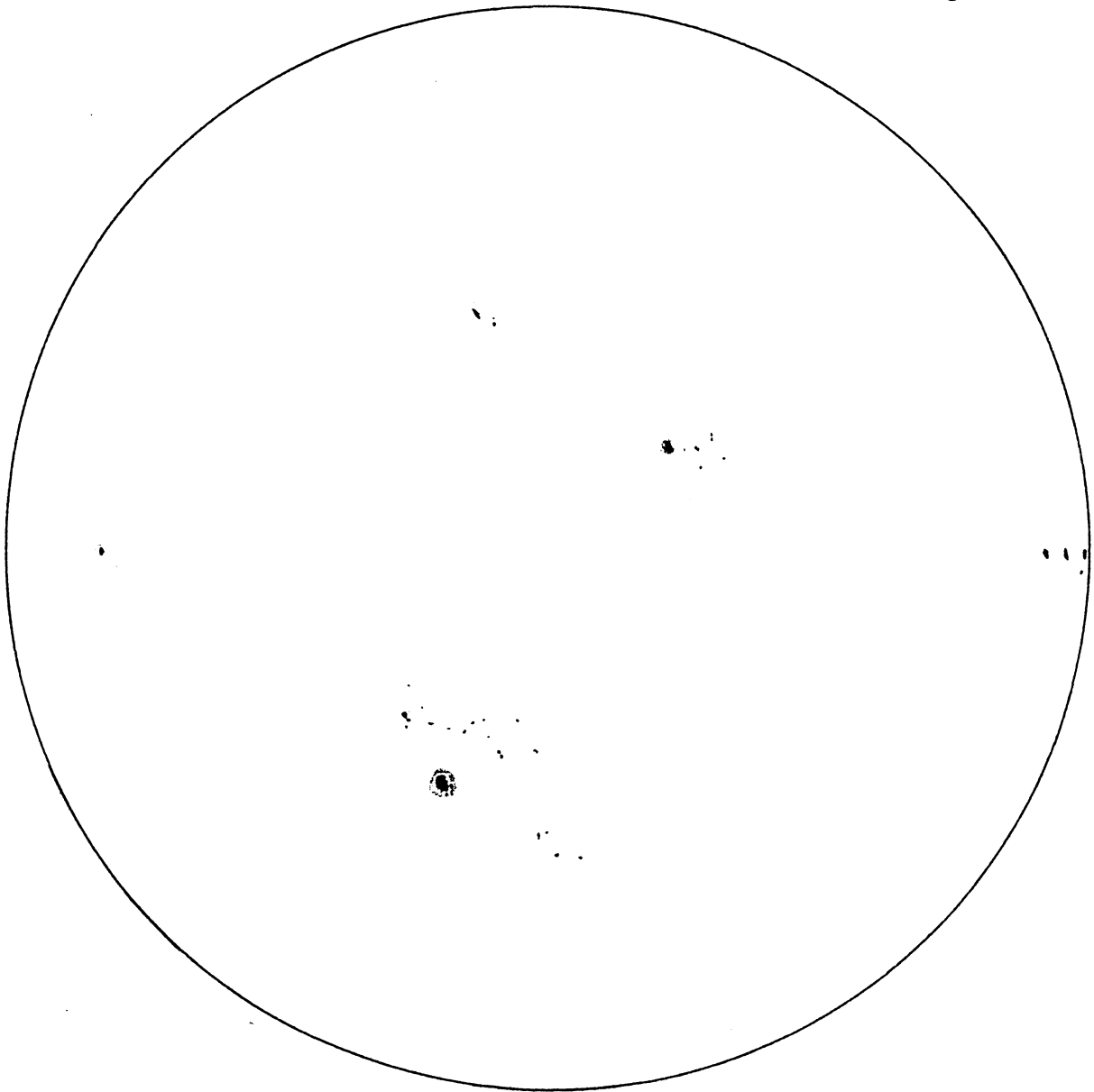
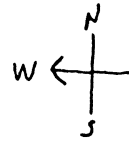
23

JUNE 5/88 3:10 → 3:30 PM E.P.T.

SKIES CLEAR SEEING $\frac{4}{5}$; TRANSPARENCY $\frac{9}{10}$

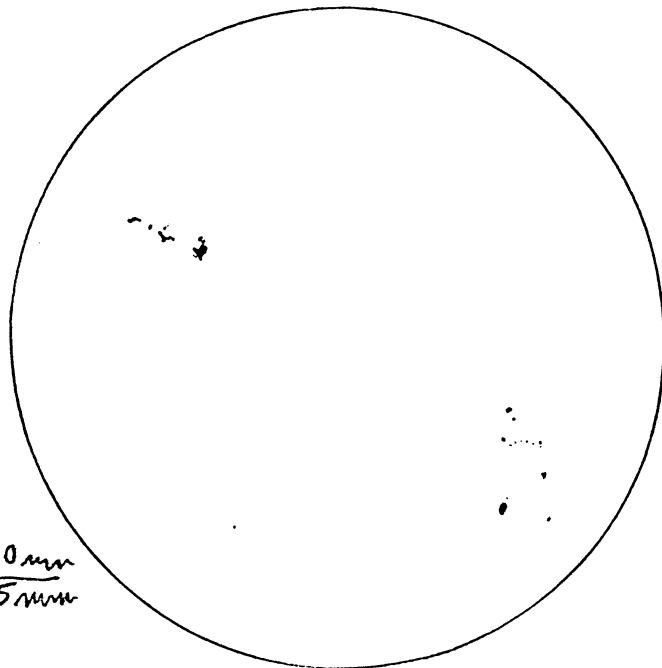
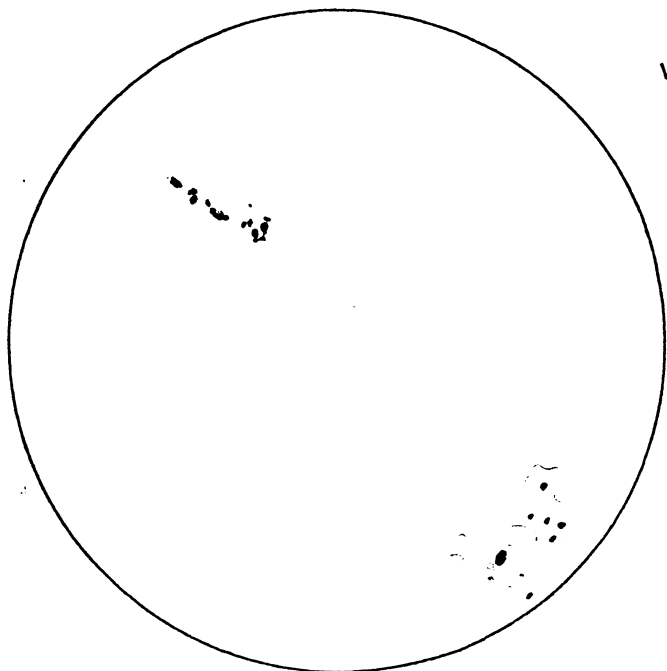
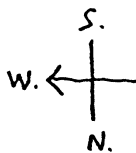
GRAIN EASILY VISIBLE IN SUNSPOT AREAS

f 8 $\frac{900 \text{ mm.}}{25 \text{ mm.}}$



MAY 30/88 6:30 P.M.
 SKIES CLEAR: TRANSP. $\frac{4}{5}$, SEEING $\frac{4}{5}$
 RAPID DRAWING, NO GRAIN OBSERVED

MAY 31/88 12:45 PM EDT
 SLIGHT HAZE IN CLEAR SKIES
 SEEING $\frac{9}{10}$; TRANSPARENCY $\frac{4}{5}$
 GRAIN EASILY SEEN IN SUNSPOT AREAS

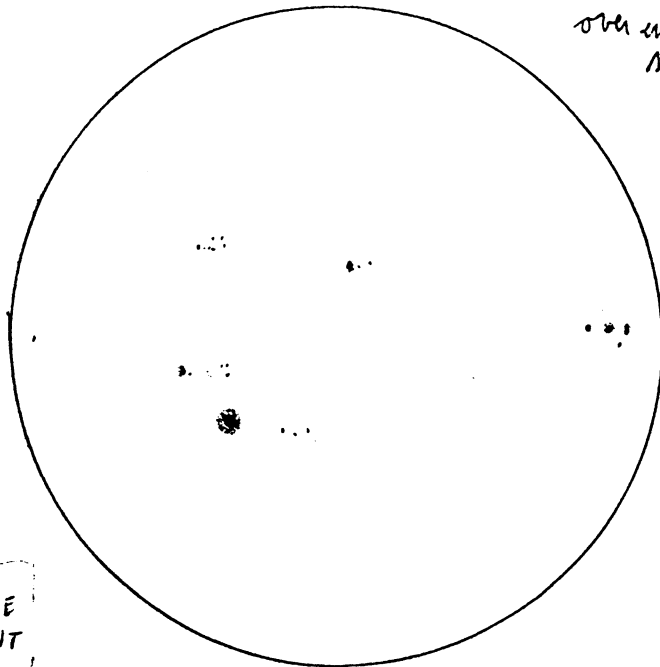
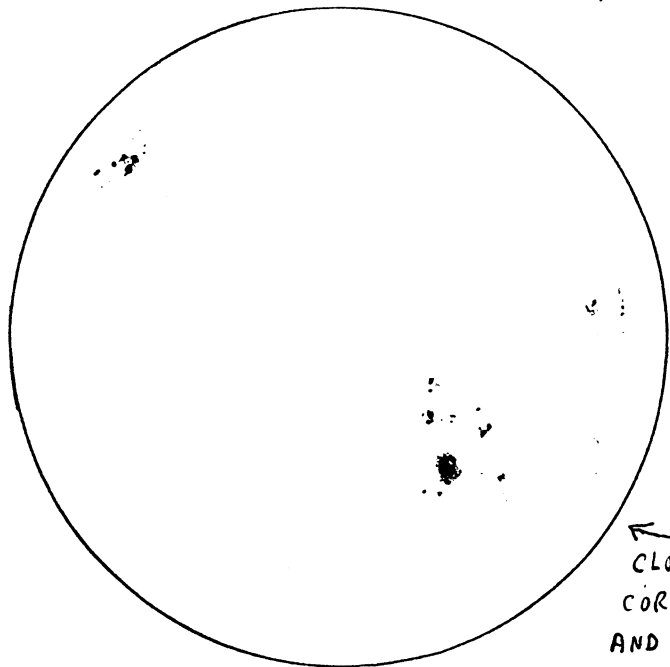


f 8 $\frac{900\text{mm}}{25\text{mm}}$

JUNE 2/88 12:40 P.M. EDT
 SKIES CLEAR IN SUN'S AREA
 SEEING $\frac{9}{10}$; TRANSPARENCY $\frac{9}{10}$
 GRAIN VERY EASILY SEEN IN SUNSPOT AREA

JUNE 6/88 12:40 P.M. EDT
 SKIES CLEAR SEEING $\frac{4}{5}$ TRANSP. $\frac{9}{10}$
 GRAIN VERY EASILY SEEN ALONG LIMB
 AND SUNSPOT AREA

over entire surface



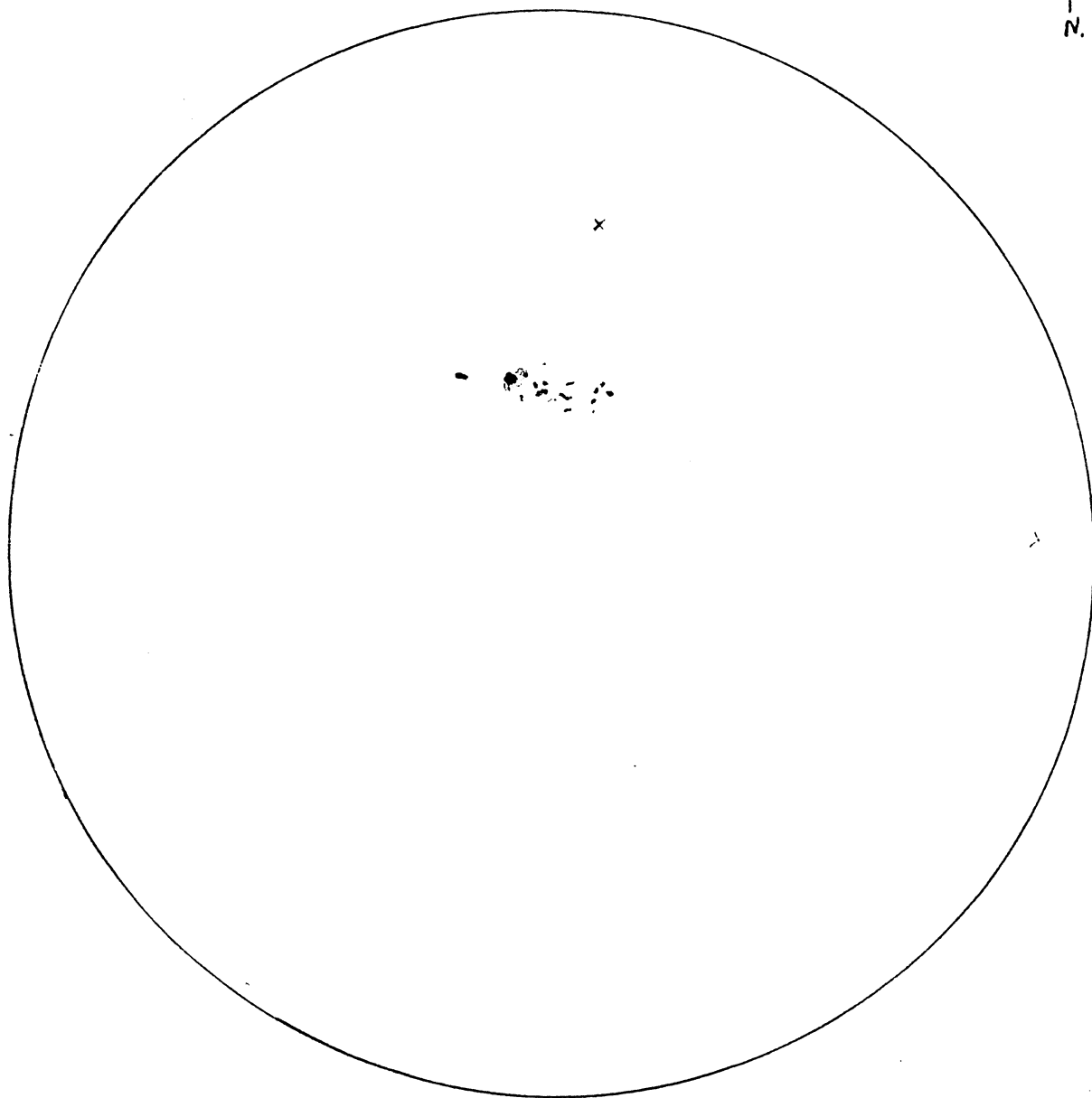
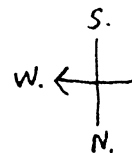
← CLOSER TO
 CORRECT SIZE
 AND PLACEMENT

MAY 28 1:30 → 1:45 P.M. E.D.T.

SKIES CLEAR. SEEING $\frac{7}{5}$; TRANSPARANCY $\frac{4}{5}$

SOLAR GRANULATION JUST BARELY OBSERVABLE

f 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$



4

21

MAY 28 2:55 → 3:30 P.M. E.D.T.

DIRECTION OF DRIFT. 5" REFRACTOR WITH DIAGONAL AND FULL AP. CEL. FILTER

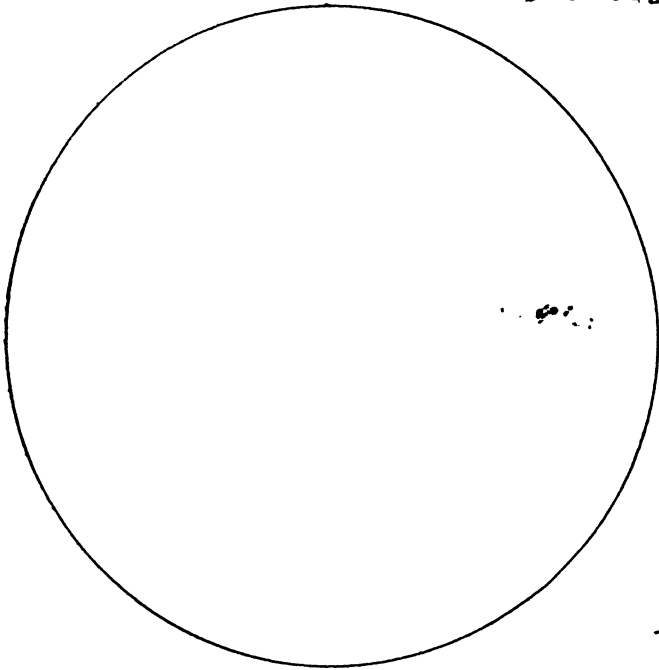
LIGHT HAZE AT 3:30 P.M. (CAME AND WENT AWAY)

SEEING $\frac{5}{10}$; TRANSPARANCY $\frac{4}{5}$

f. 15 $\frac{75''}{1'' \leftarrow (25 \text{ mm})}$

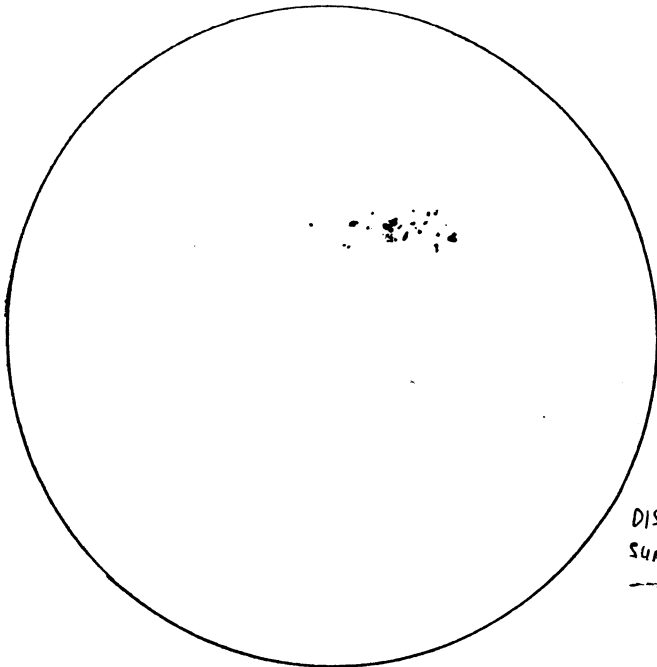
MAY 23/88 2:15 P.M. E.D.T.

CLEAR PATCHES IN BETWEEN CUMULOUS CLOUDS



TRANSPARENCY $\frac{5}{10}$
SEEING $\frac{4}{5}$

MAY 27 12:45 P.M. E.D.T. VERY THIN HAZE
SEEING $\frac{7}{10}$ TRANSPARENCY $\frac{4}{5}$

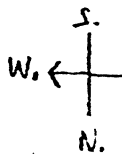
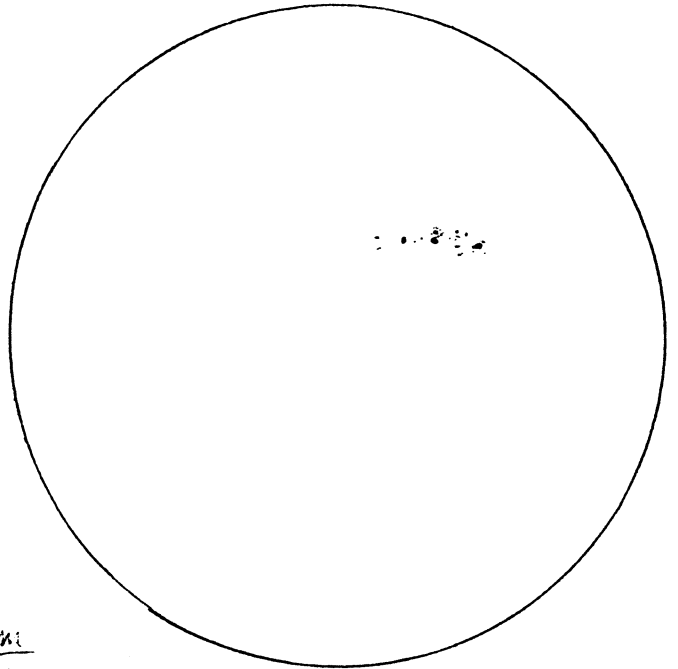


SMALL TREE BRANCHES MOVE IN BREEZE
SOLAR GRANULATION OBSERVED WHEN TELESCOPE STEADY

DRAWING DOES NOT DO JUSTICE TOWARDS INDICATING AMOUNT OF DETAIL OBSERVED.

MAY 26 12:40 E.D.T.

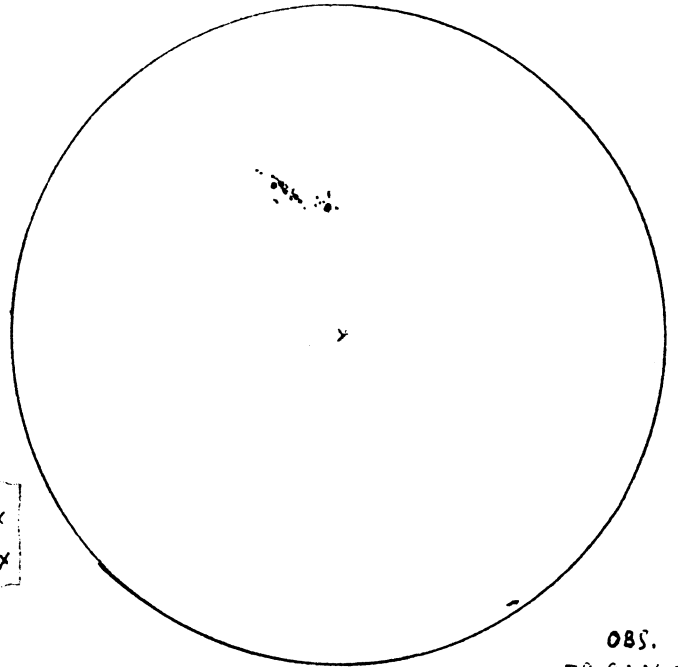
* SKIES CLEAR
TRANSPARENCY $\frac{4}{5}$
SEEING $\frac{4}{5}$
MEDIUM TREE BRANCHES MOVE IN BREEZE, (TELESCOPE) VIBRATES



f8 900mm
25mm.

* ISOLATED SMALL CLOUDS AND NARROW CLOUD GAPS

MAY 29 3:20 P.M. (HAZE) → 4:20 P.M. E.D.T. (CLEAR PATCHES)
HAZE DEVELOPING INTO OVERCAST WITH CUM. CLOUDS RING AROUND SUN



DISC OF SUN 17X
SUNSPOTS 36X

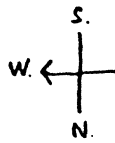
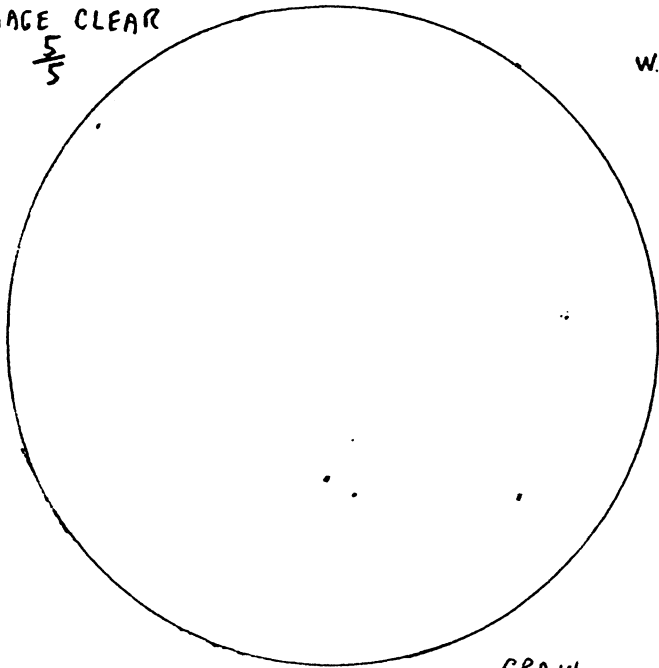
SEEING $\frac{4}{5}$; TRANSPARENCY $\frac{2}{5}$

OBS.
79-92242 W
+43-39068

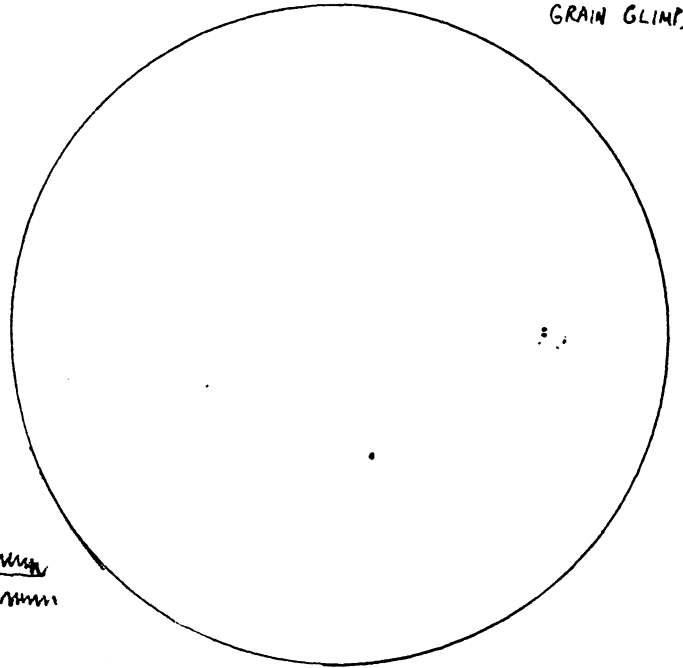
21

MAY 6/88 12:30 PM EDT
SKIES CLEAR, CLOUD STREAKS ALONG
EASTERN HORIZON

IMAGE CLEAR
 $\frac{5}{5}$



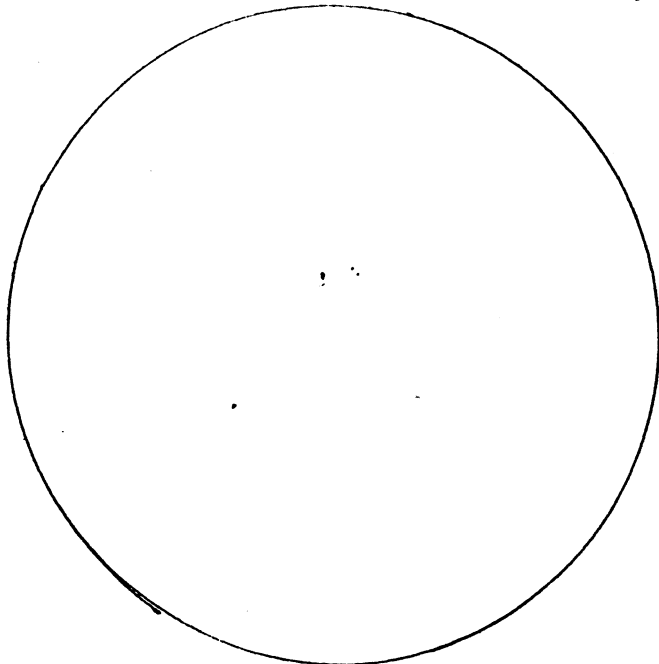
MAY 8/88 2:30 P.M. EDT
SKIES CLEAR, CLOUD BANDS APPROACHING FROM N.W.
TRANSPARANCY $\frac{4}{5}$; SEEING $\frac{7}{5}$ (RIPPLES ACROSS SUN)
GRAIN GLIMPSED



f 8 $\frac{900mm}{25mm}$

GRAIN
IMAGE CLEAR, STEADY $\frac{5}{5}$; EASILY VISIBLE

MAY 11; 12:46 PM EDT
SKIES CLEAR; IMAGE CLEAR, STEADY $\frac{4}{5}$



GRAIN EASILY VISIBLE
IN SUNSPOT AREA

MAY 14/88 (NO SPOTS) FAINT SPOTS
SKIES CLEAR, NO CLOUDS
SMALL BRANCHES MOVE IN BREEZE
TREE

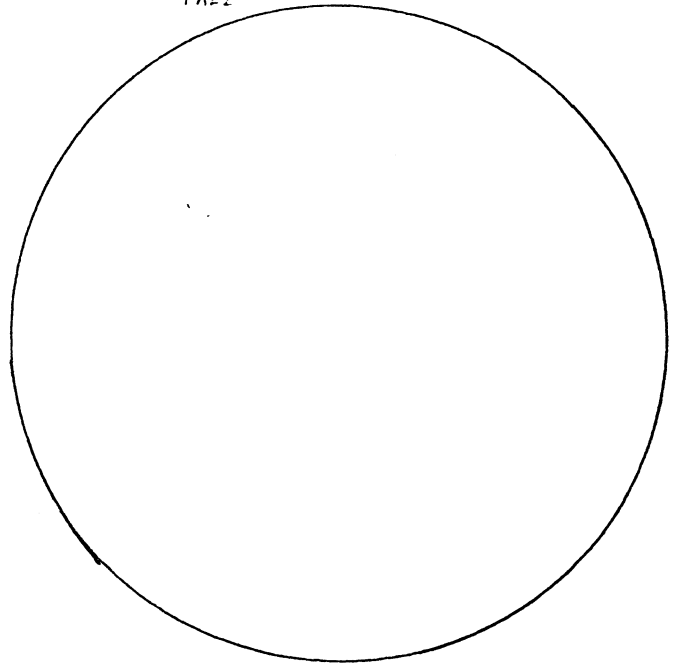


IMAGE CLEAR $\frac{4}{5}$

2:30 P.M. EDT.

IMAGE STEADY $\frac{5}{10}$

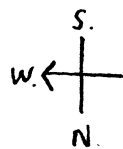
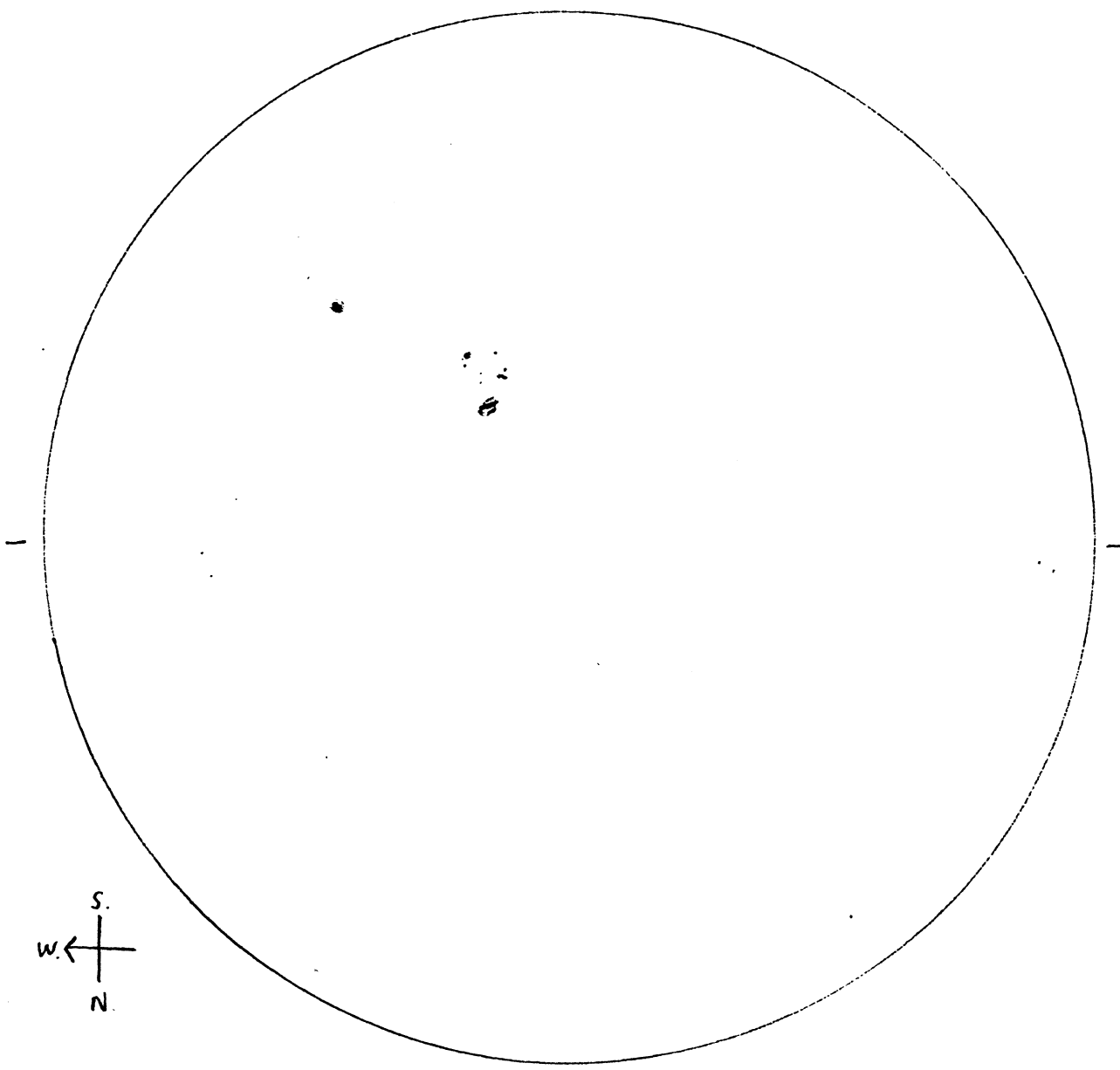
MAY 1/88 1:45 → 2:15 E.D.T.

SKIES CLEAR WITH WHITE CLOUD PATCHES
TELESCOPE STEADY, IMAGE ALMOST STEADY (SLIGHT RIPPLE)
JUST BARELY DETECTED GRAIN

5 STEADY

↑

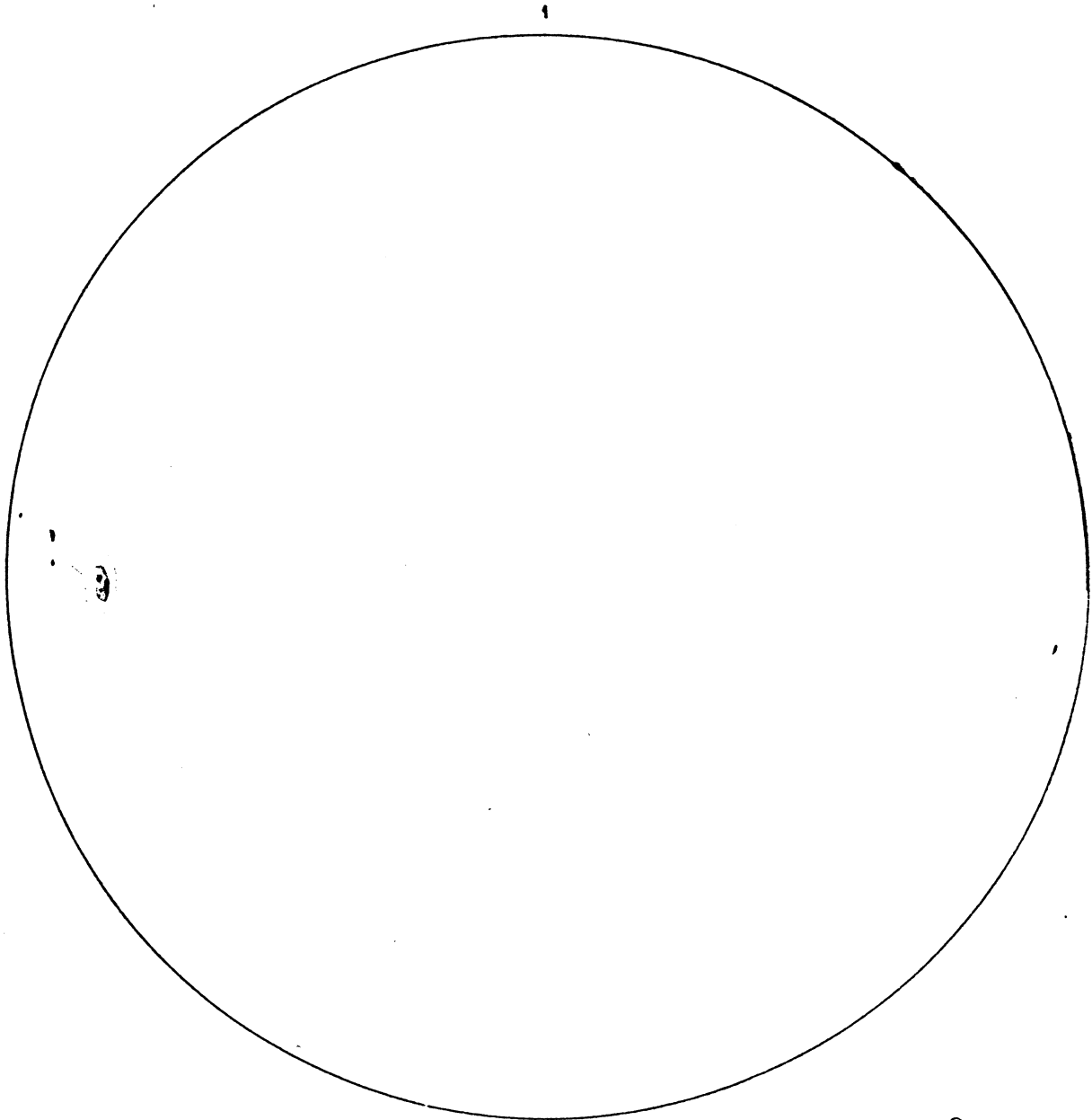
1 TURBULENT



f8 $\frac{900 \text{ mm}}{25 \text{ mm}}$

APR 22/88 7:20 P.M. E.D.T

SKIES CLEAR WITH CLOUD BANDS
ON HORIZON



W. ← E
N.

900 mm f8
25 mm

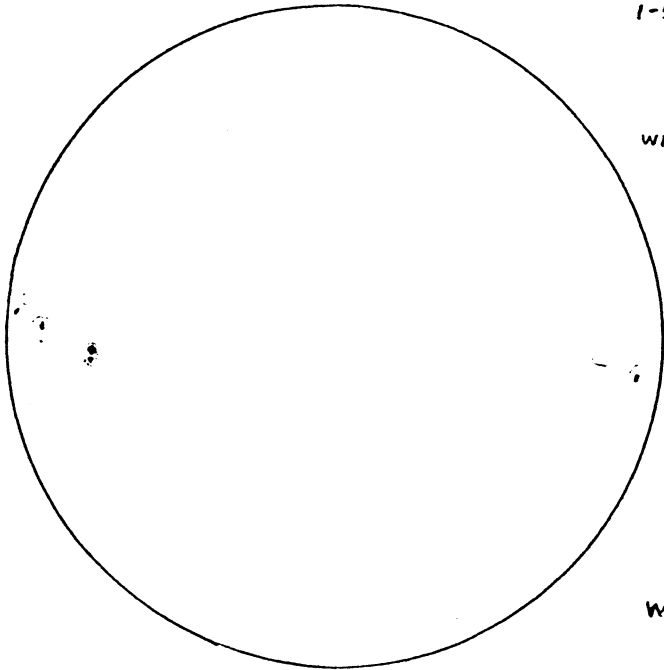
WITH CROSSHAIRS

(2)

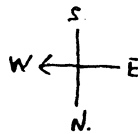
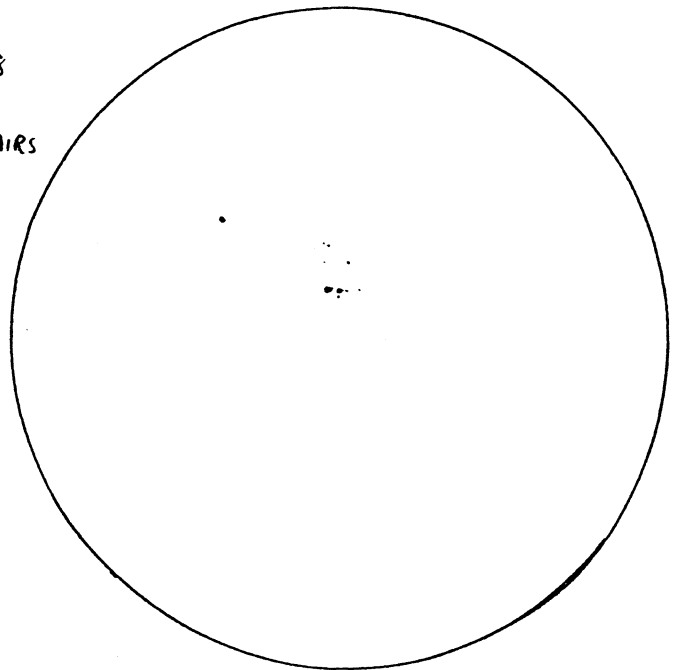
(19)

APR 22/88 2:00 P.M. E.D.T
 SKIES CLEAR ATMOSPHERE STEADY
 SEEING TURBULENT NO
 1-5

APR 30/88 4:00 P.M.
 SKIES CLEAR WITH CLOUD PATCHES
 NO GRAIN OBSERVED

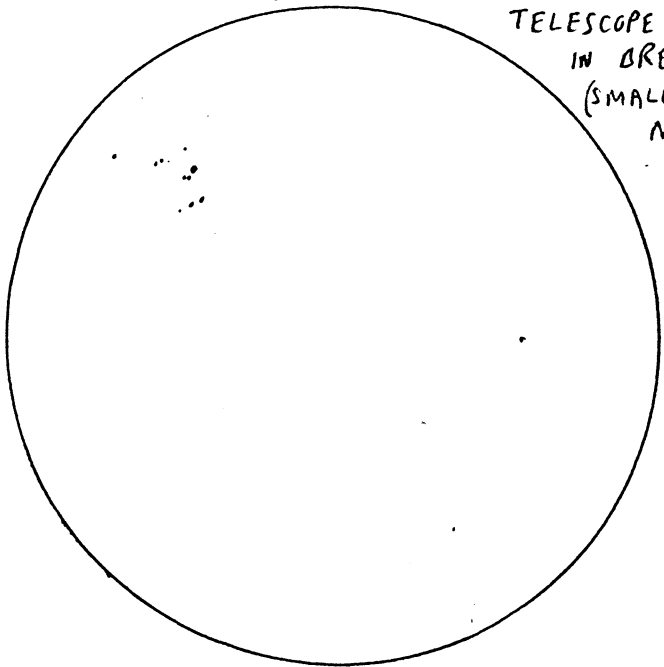


900mm f8
 25mm
 WITH CROSSHAIRS

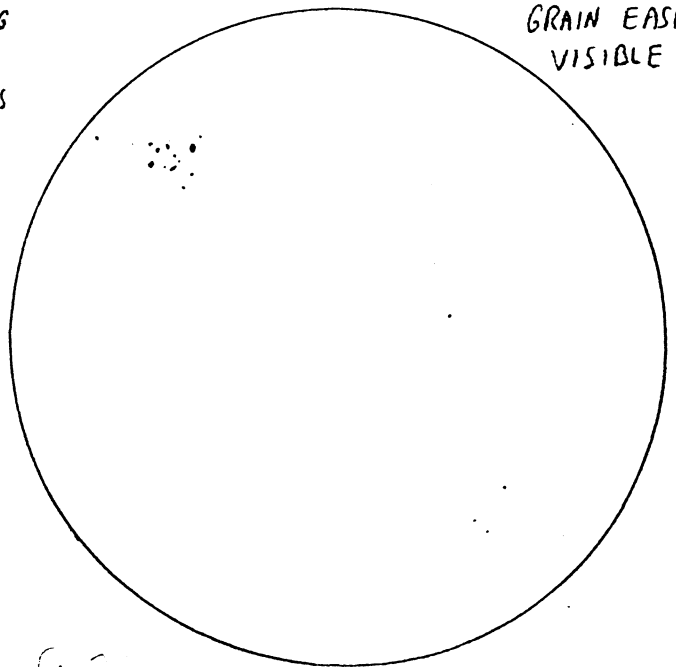


2, CLOUDY
 MAY 3, 12:30 P.M. E.D.T.
 SKIES CLEAR, IMAGE VERY CLEAR ($\frac{4}{5}$)

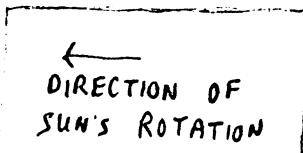
MAY 4 12:40 P.M. E.D.T
 SKIES CLEAR, IMAGE STEADY ($\frac{4}{5}$)



TELESCOPE VIBRATING
 IN BREEZE
 (SMALL BRANCHES
 MOVE)



GRAIN EASILY
 VISIBLE



WHOLE GROUP EMBEDDED
 IN FACULAE

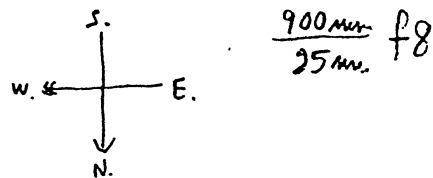
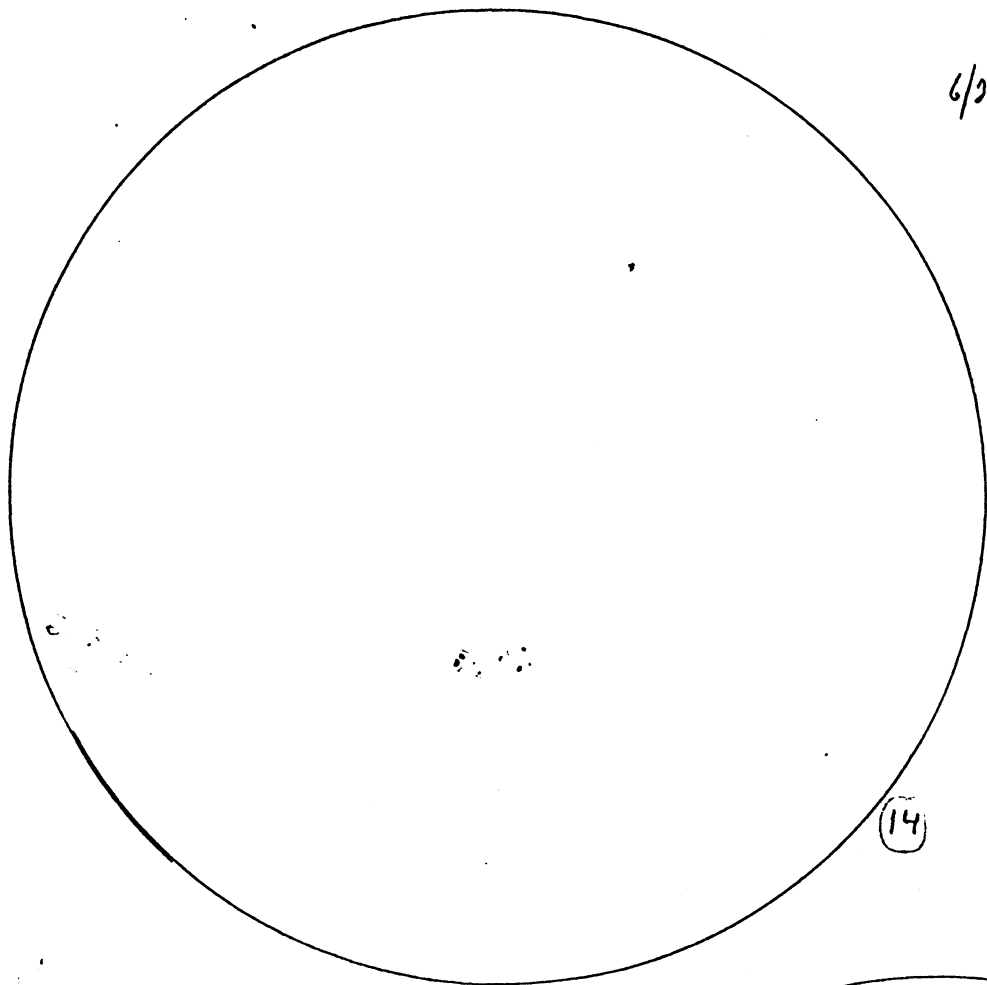
GRAIN EASILY VISIBLE
 OVER ENTIRE SURFACE

6/24/87 5:00 PM E.D.T.

SKIES CLEAR

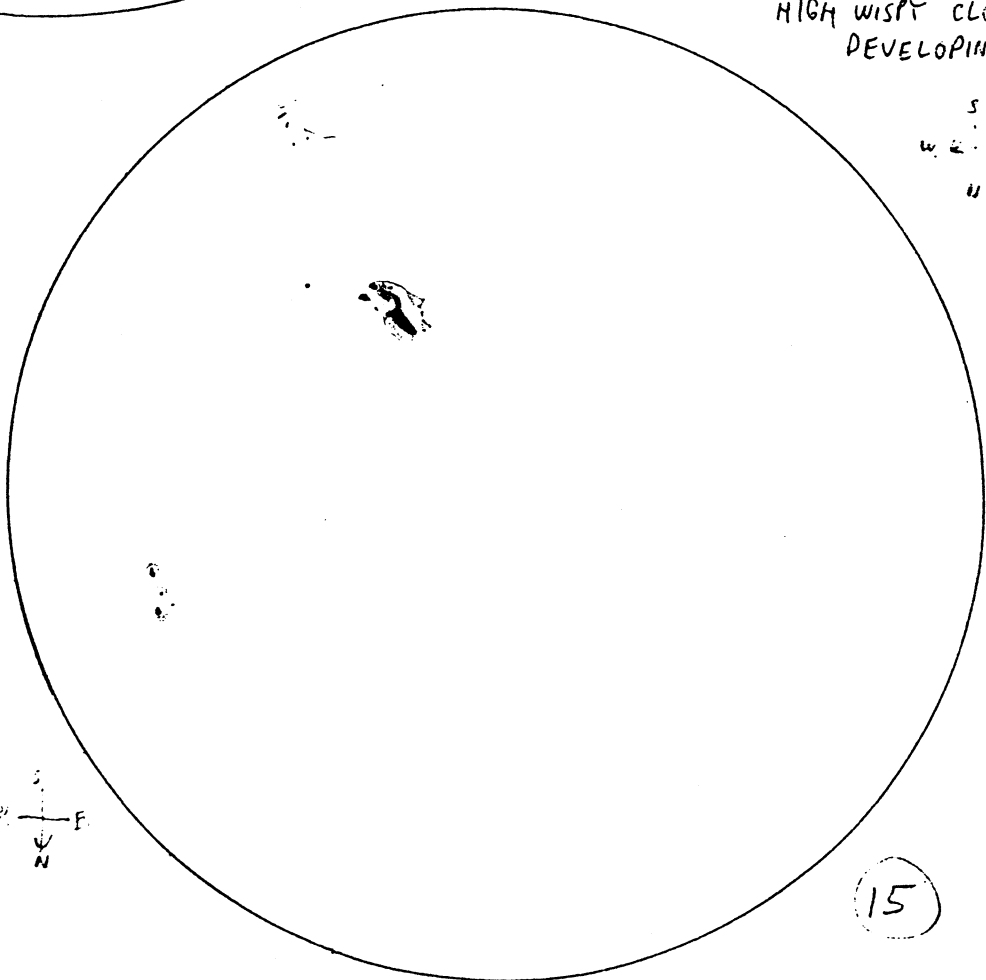
GRAIN EASILY VISIBLE
OVER ENTIRE SURFACE WHEN
IMAGE WAS JARRED

FACULAE NOT DRAWN AS
SEEN, SKETCH ONLY INTENDED
TO SHOW FAC. ACTIVITY



3/20/88

2:45 PM EST
HIGH WISPY CLOUDS
DEVELOPING



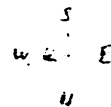
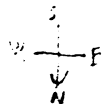
LIMB OF SUN

ACTUAL POSITION
IN RELATION
TO EACH OTHER

+
CTR
OF
SUN

MAIN SPOT SHOULD
LAY LESS SLANTED

LIKE SMOKE COMING FROM
A STEAM ENGINE



6/24 P.M. E.D.T.
SUN IN CLEAR
AREA OF SKY

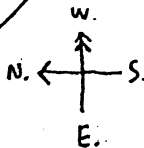
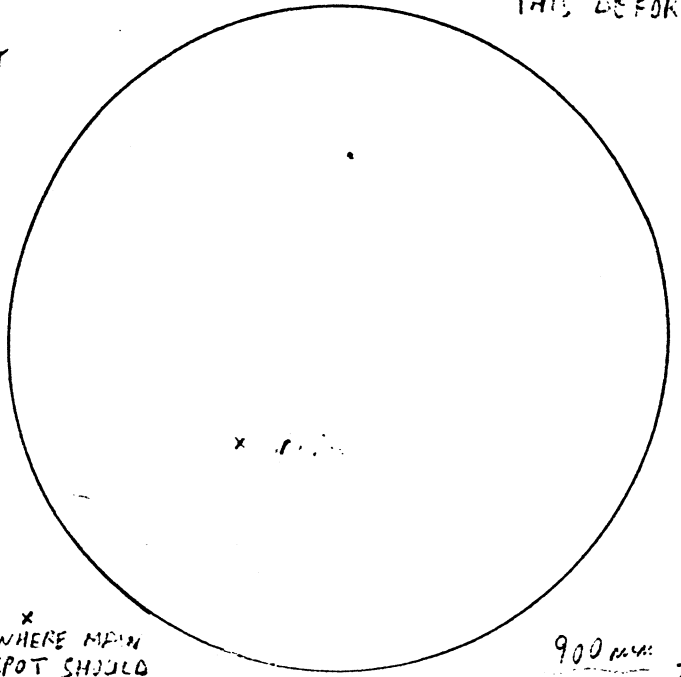
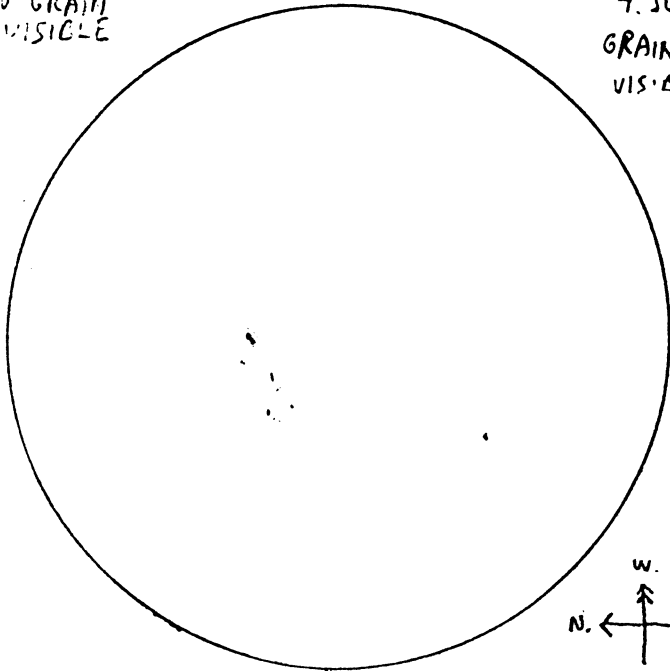
900 mm f 8
25 mm

6/25/87 3:00 P.M. E.D.T.
SKIES CLEAR WITH CUMULUS CLOUDS

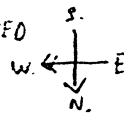
NO GRAIN
VISIBLE

4:30 P.M.
GRAIN EASILY
VISIBLE

AREA WITHIN CIRCLE
SLIGHTLY LIGHTER THAN
OUTSIDE CIRCLE
I HAVE
NEVER NOTICED
THIS BEFORE



*
WHERE MAIN
SPOT SHOULD
HAVE BEEN LOCATED



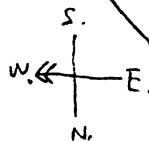
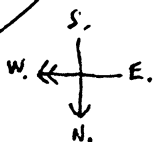
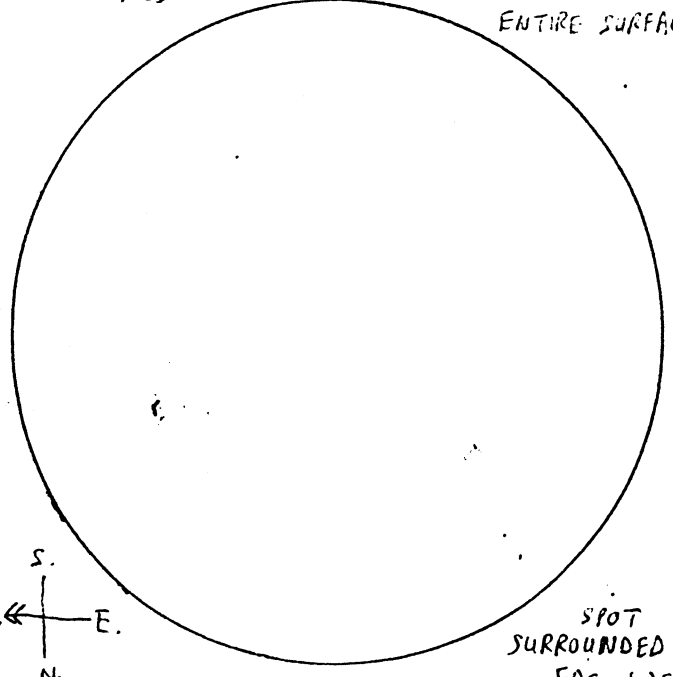
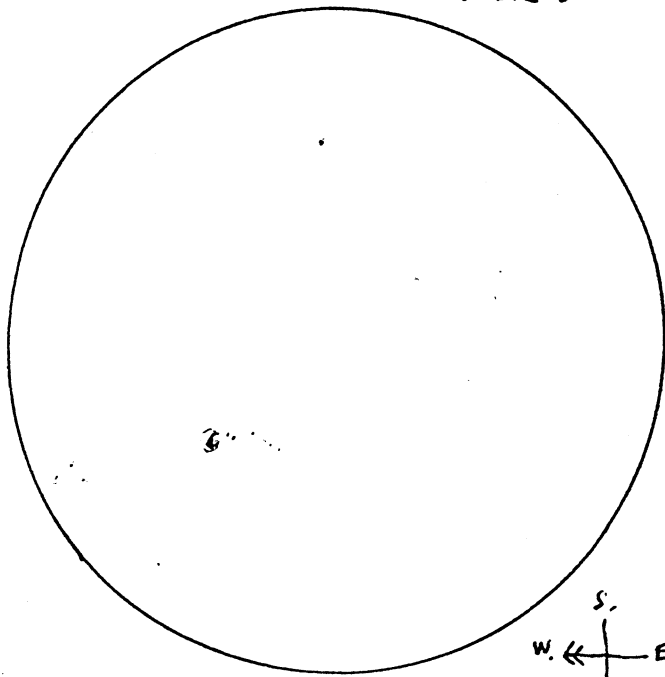
900 mm f 8
25 mm

6/25/87 2:45 P.M. E.D.T.
SKIES CLEAR WITH
CUM. CLOUDS

GRAIN EASILY
VISIBLE

6/26/87 4:45 P.M. E.D.T.
SKIES CLEAR WITH
ISOLATED CUM. CLOUDS

900 mm f 8
25 mm
GRAIN EASILY
VISIBLE OVER
ENTIRE SURFACE

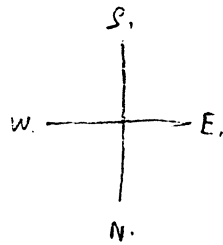
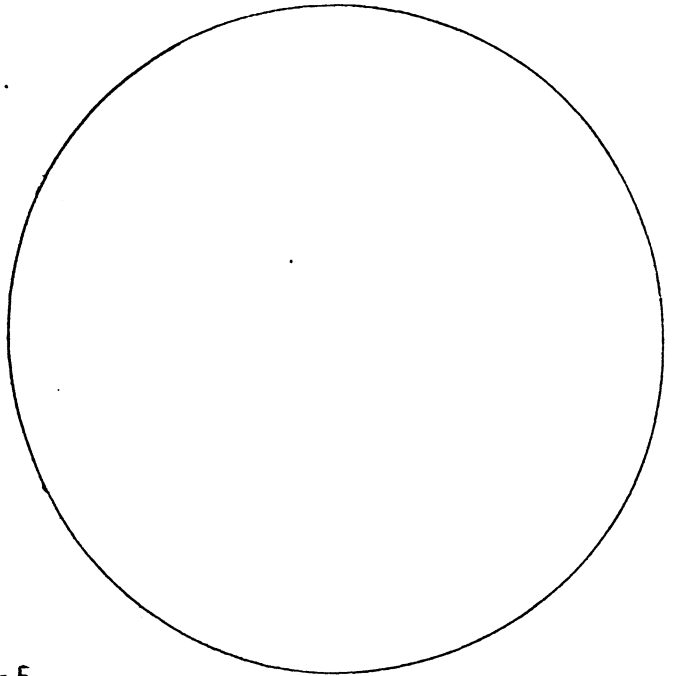
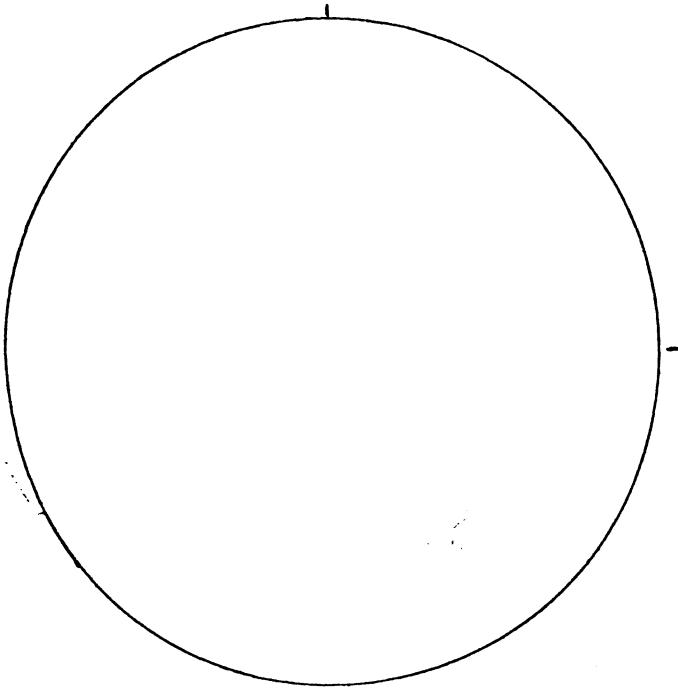


SPOT
SURROUNDED BY
FACULAE
NO PENUMBRA VISIBLE

#14

APR. 20/87 12:30 PM E.D.T.
 SKIES CLEAR
 GRAIN VISIBLE ALONG
 NORTHERN LIMB # of SPOTS (0)

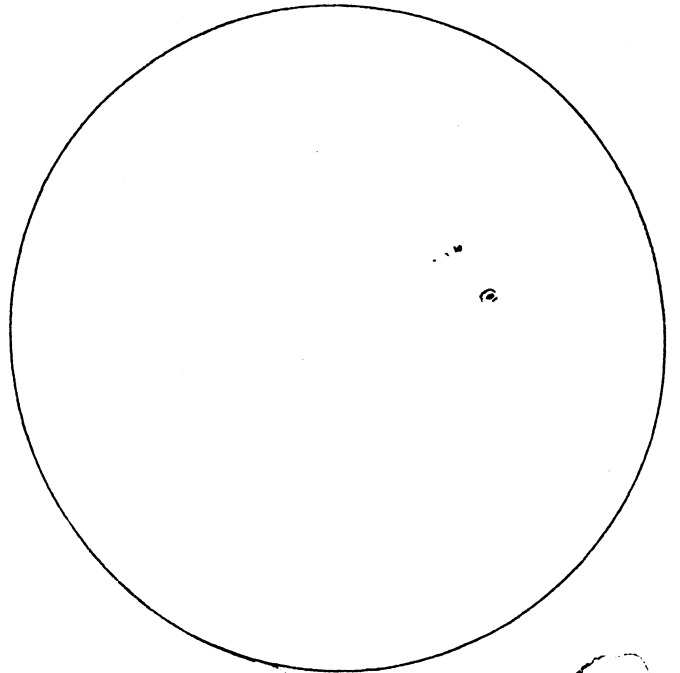
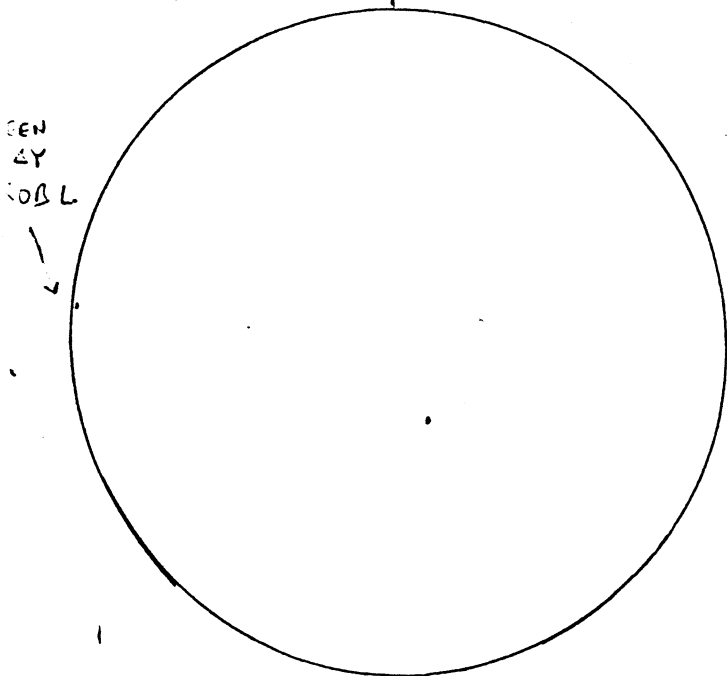
4/22 12:30 PM E.D.T
 COPIED 4/23 8:00 AM E.D.T.



APR. 26 3:30 P.M. E.D.T.
 SKIES CLEAR
 GRAIN VISIBLE
 IN SUNSPOT AREA
 AND ALONG LIMB

5/9/87 12:45 PM E.D.T
 THIN CIRRUS CLOUDS
 RING AROUND SUN
 GRAIN GLIMPSED

900mm ± 2
 25mm

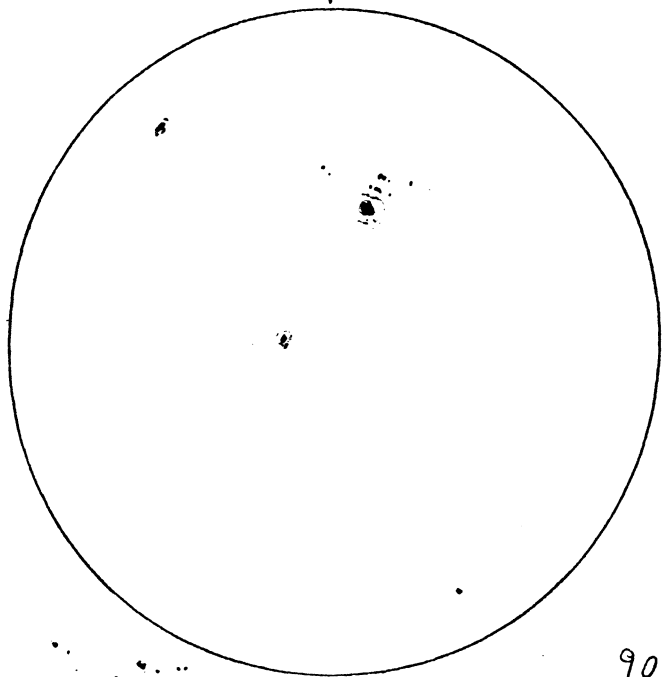


GEN
 BY
 JOBL

APR 13/87 5:45 PM. E.D.T.

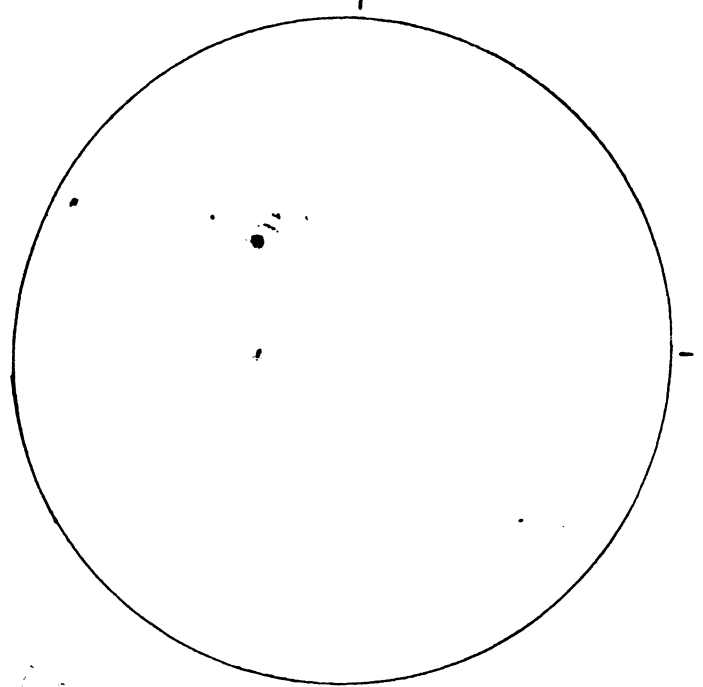
LIGHT VARIABLE OVERCAST
THICKENING TOWARDS
SOUTHWEST

NO GRAIN
VISIBLE



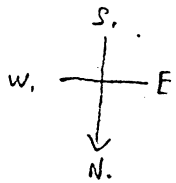
APR. 14/87 12:30 P.M. E.D.T.

"SHEEP-WOOL" CLOUDS
MOVING ACROSS FIELD
OF VIEW



APRIL 13/87
75X $\frac{900 \text{ mm}}{12 \text{ mm}} = 75$ 6:00 PM EDT

900 mm
25 mm

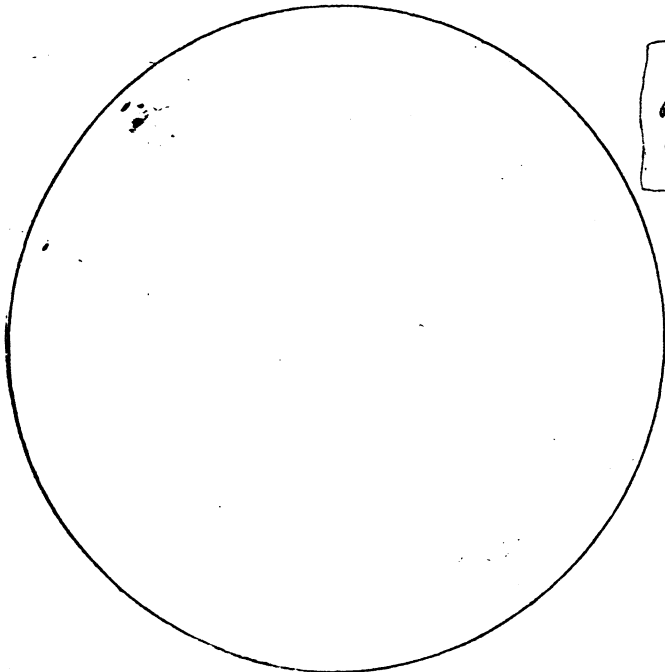


APRIL 13/87 2:00 PM EDT

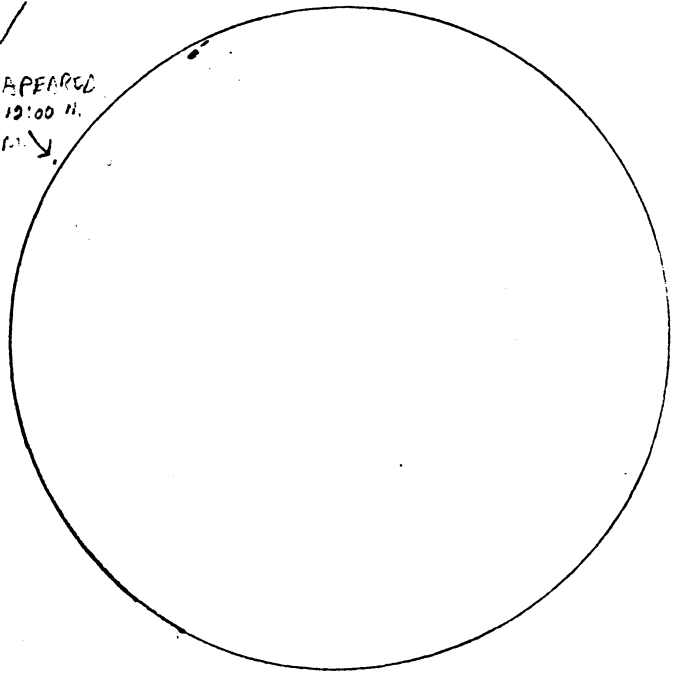
CLEAR SKIES
GRAIN VISIBLE ALONG LIMB

APR 13/87

LIGHT WISPY
CLOUD PATCHES
1:00 PM. EDT. GRAIN GLIMSED IN
AREA OF FACULAE

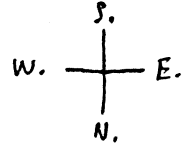


SPOT DISAPPEARED
BETWEEN 12:00 H.
AND 3:00 PM. EDT.



APR. 18/87 7:50 P.M. E.D.T.

HAZE IN NORTH-WEST
THICKENING TO A
CLOUD BANK ALONG
HORIZON

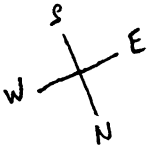


(12)



APR. 11/87 3:30 P.M. E.D.T.

CLEAR PATCHES IN
BETWEEN SPREADING
OVERCAST



f 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$

(11)

→ #15

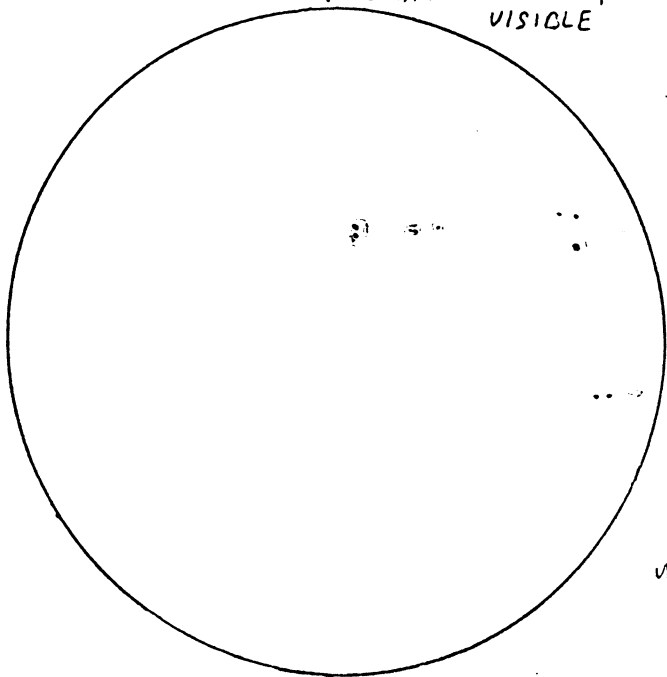
(11)

RAPID DRAWING

4/8/87 12:30 P.M. E.D.T. CLEAR SKIES
CLOUDS ALONG N.E. HORIZON, MOVING SOUTH

COPIED FROM ORIGINAL SKETCH 4/10 1:00 AM.

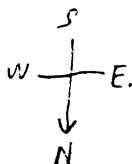
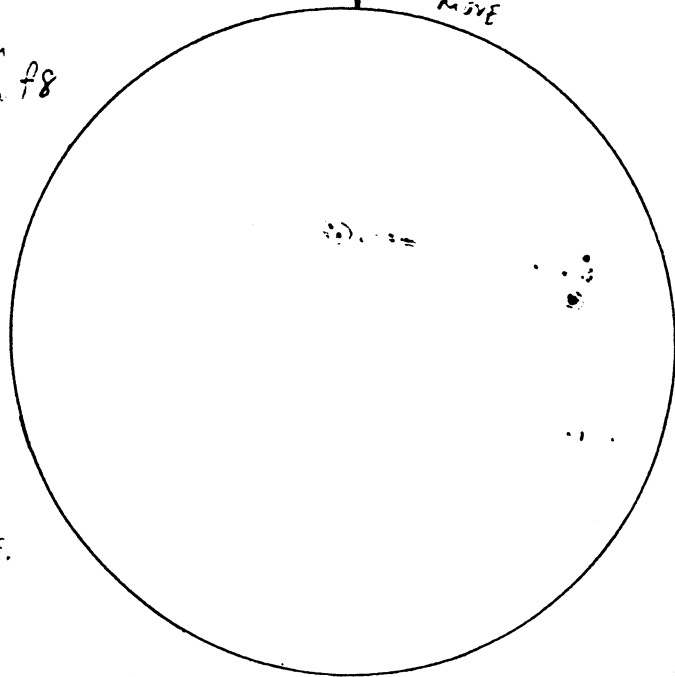
GRAIN DISTINCTLY VISIBLE



900 mm
25 mm 18

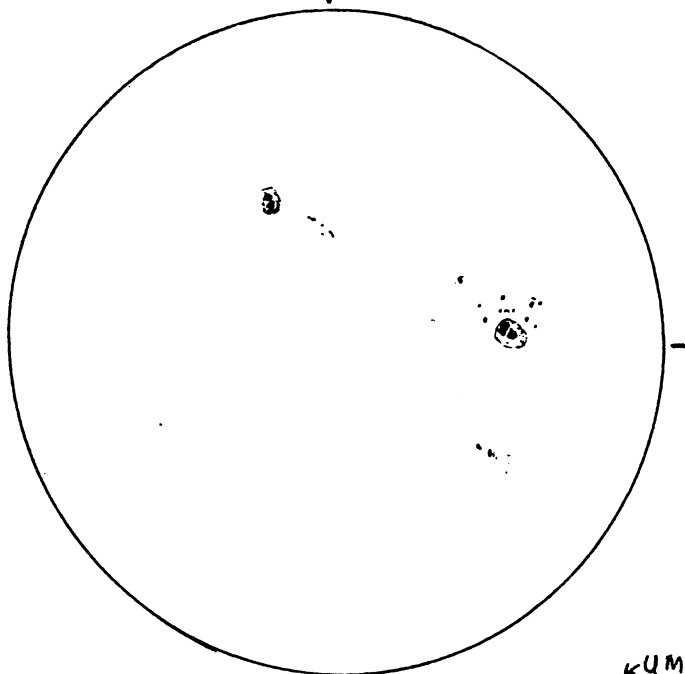
4/9/87

12:45 EDT
RAPID DRAWING
SKIES CLEAR,
BREEZE, SMALL GRANCES MOVE



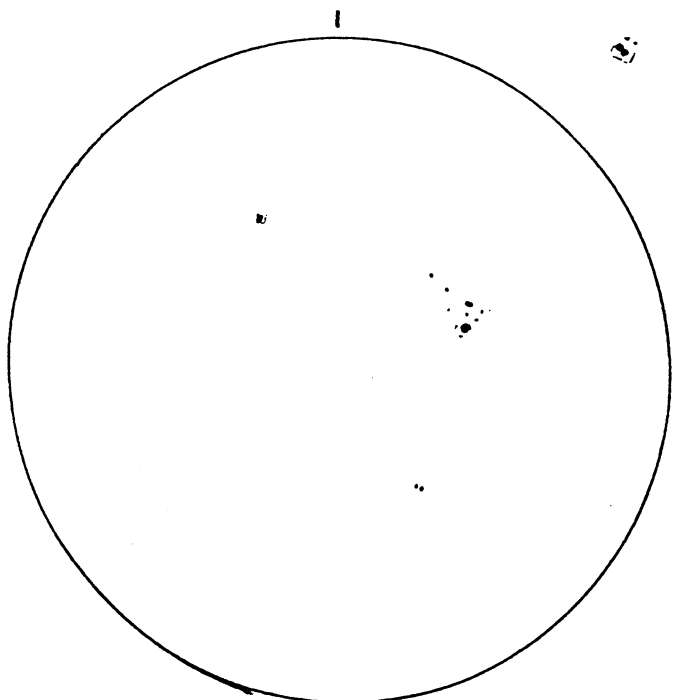
4/10/87

6:30 P.M. E.D.T.
LIGHT OVERCAST
MOVING ACROSS SUN
GRAIN VISIBILITY DOUBTFULL



4/11/87

1:00 P.M. EDT.
CLEAR SKIES, A.M.
CLEAR PATCHES IN
THICKENING OVERCAST, P.M.



← KUMBRA
← PENUMBRA
← FACULAE

MAR. 16/87 12:30 PM EST

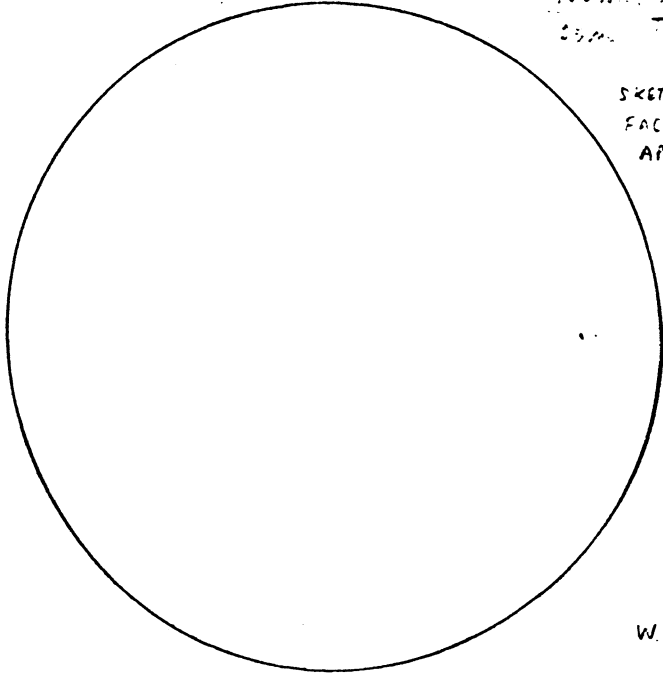
CLEAR SKIES

WINDY / PAPER IS CLEAN
ALONG GROUND

GLIMPSES OF
GRAINY STRUCTURE

$\frac{900 \text{ mm}}{25 \text{ mm}} \times 8$

SKETCHES OF
FACULAE
APPROXIMATE



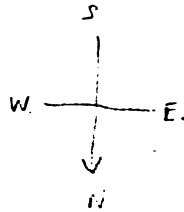
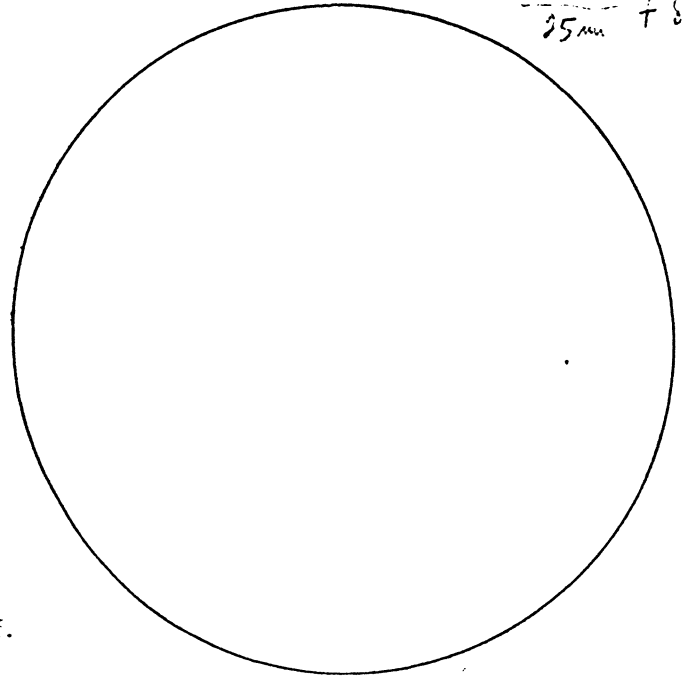
MAR. 17 12:30 PM EST

SKIES CLEAR

WINDY: SMALLEST
BRANCHES MOJE

GRAIN VISIBLE
 $\frac{1}{3}$ RADIUS IN FROM LIMB

$\frac{900 \text{ mm}}{25 \text{ mm}} \times 8$



$\frac{900 \text{ mm}}{25 \text{ mm}} \times 8$

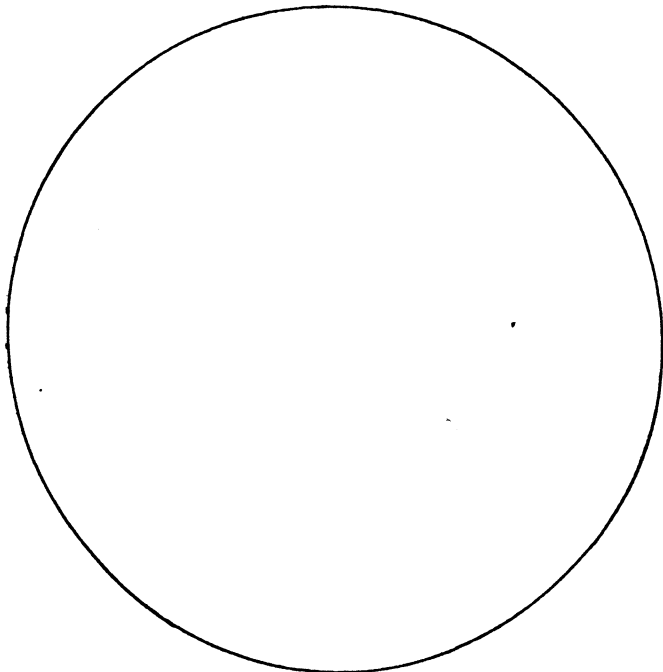
MAR. 18/87

12:30 PM EST

CLEAR SKIES

SLIGHT TRACE OF
WISPY CLOUDS

GRAIN VISIBLE
AROUND SUNSPOT
AREA

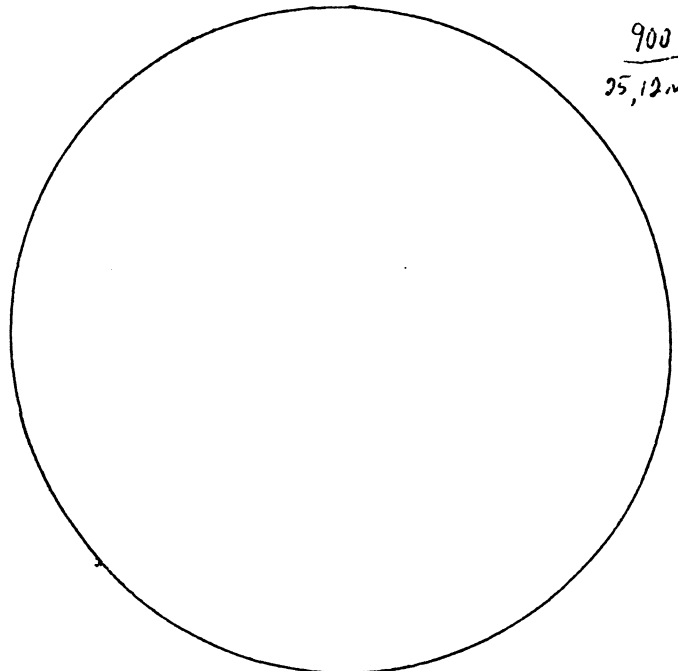


MAR 19/87

12:30 P.M. EST

CLEAR SKIES

NO SPOTS OBSERVED
GRAIN GLIMPSED



$\frac{900 \text{ mm}}{25, 12 \text{ mm}} \times 8$

MAR 20

CLEAR SKIES

NO SPOTS $\times 8$

1/25/87
CLEAR SKIES
NO SPOTS

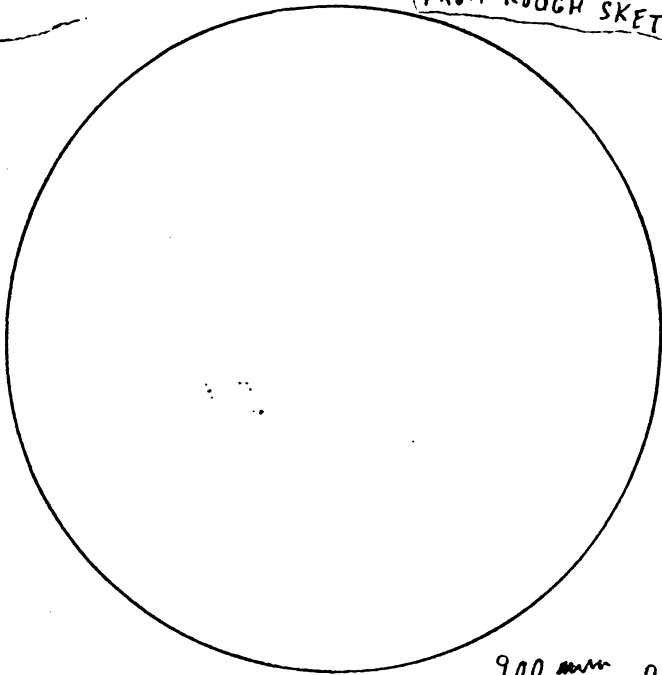
1/31/87
WHITE CLOUDS
IN CLEAR SKIES
NO SPOTS

MAR. 5/87 12:30PM.
CLEAR PATCHES IN
CLOUDY SKIES

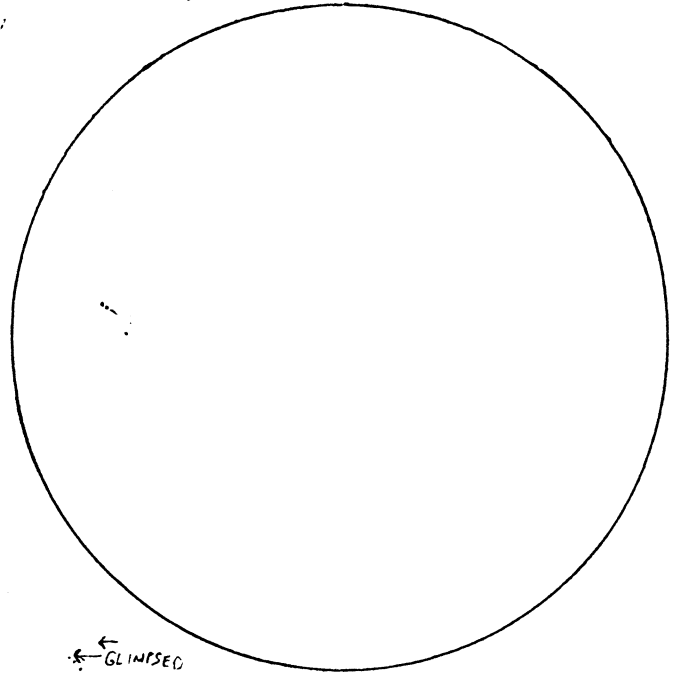
DRAWING COPIED AT 6:00PM
FROM ROUGH SKETCH

MAR. 7/87 9:30 P.M. EST
CLEAR SKIES

$\frac{900 \text{ mm}}{25 \text{ mm}} = 8$



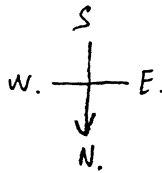
$\frac{900 \text{ mm}}{18 \text{ mm}} f8$



← GLIMPSED

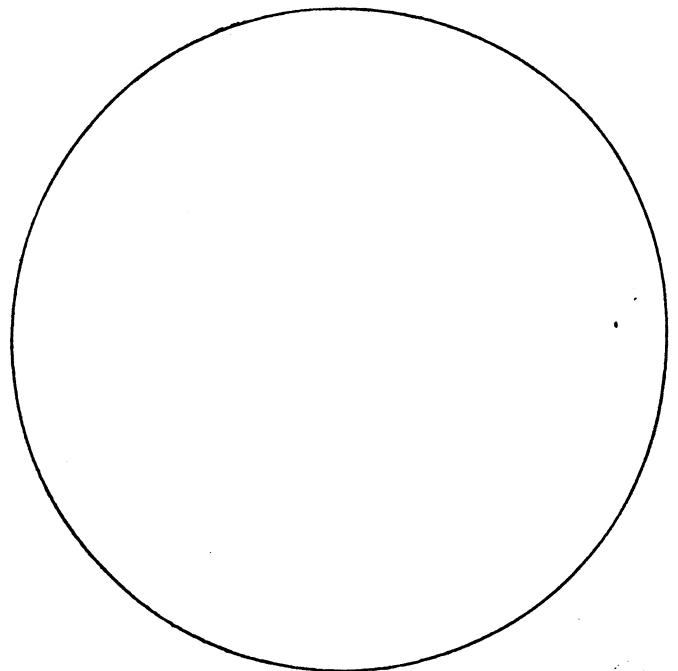
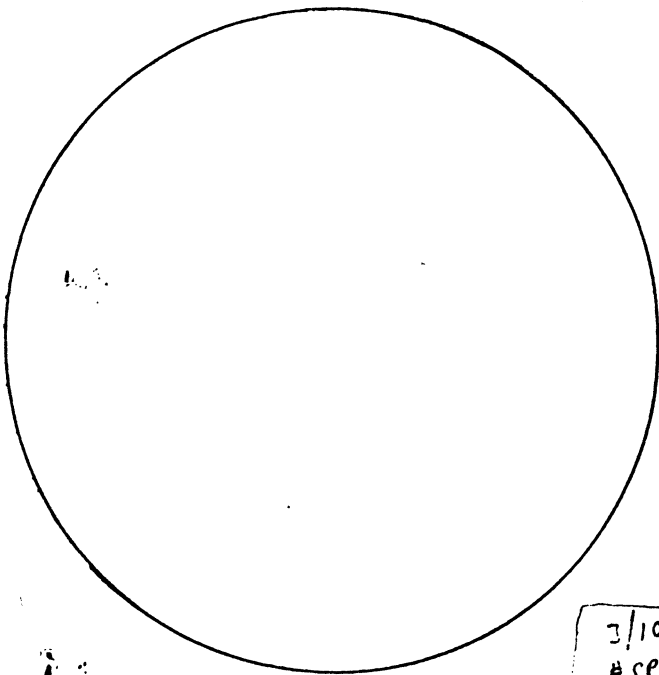
MAR. 8/87 2:30 P.M. EST
CLEAR SKIES
64°F

$\frac{900 \text{ mm}}{25 \text{ mm}} f8$



MAR. 15/87
CLEAR SKIES
75°F

2:30 P.M. EST
 $\frac{900 \text{ mm}}{25 \text{ mm}} f8$



100x $\left(\frac{900 \text{ mm}}{9 \text{ mm}} f8\right)$

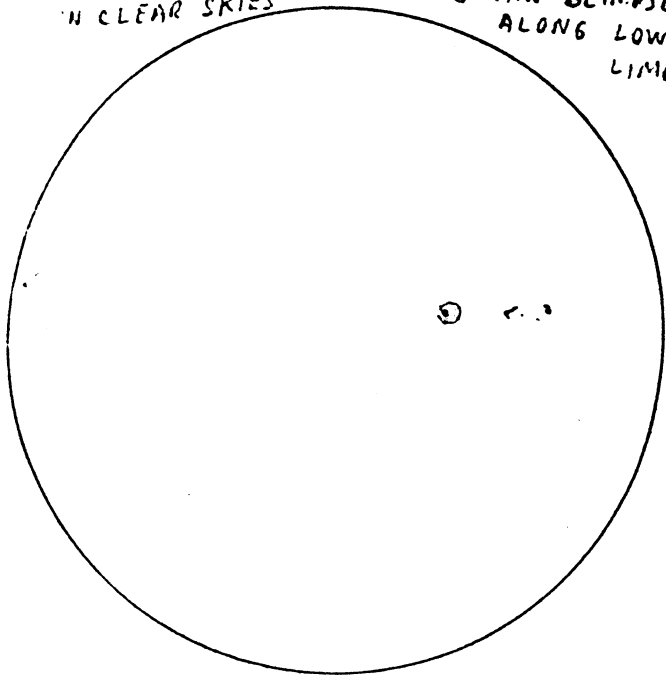
3/10/87
SPOTS 0
HIGH CIRCUS
CLOUDS
PARTIAL RING

OCT. 31/86 12:30 E.S.T.

900 mm f8

WISPY CLOUDS
IN CLEAR SKIES

36X
GRAIN GLIMPSED
ALONG LOWER
LIMB

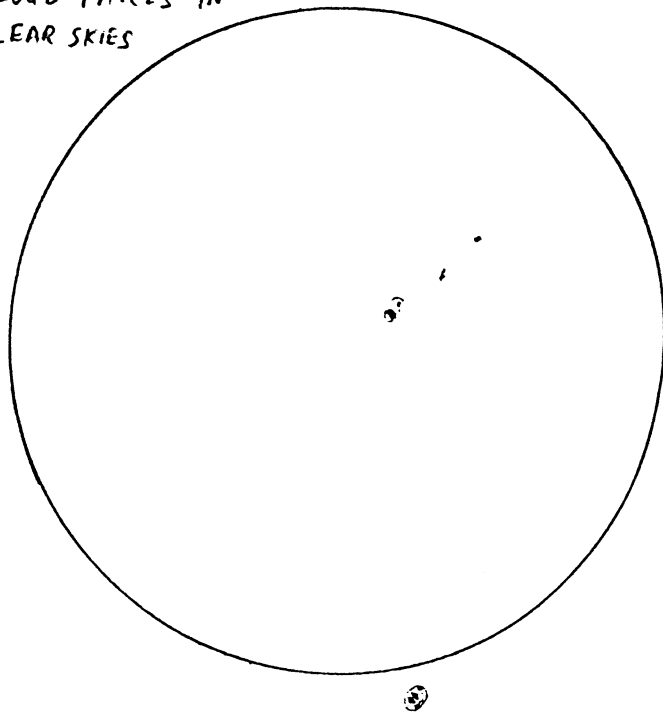


NOV. 1 12:00 E.S.T.

900 mm f8

HAZE AND APPROACHING
CLOUD PATCHES IN
CLEAR SKIES

36X



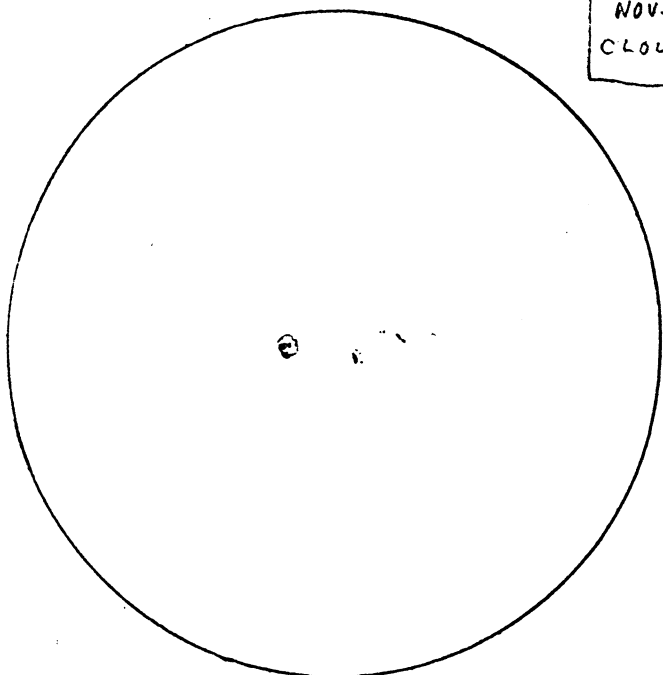
NOV. 2 1:45 E.S.T.

900 mm f8

50% CLOUDS IN
CENTRAL AREA

36X

NOV. 3
CLOUDY



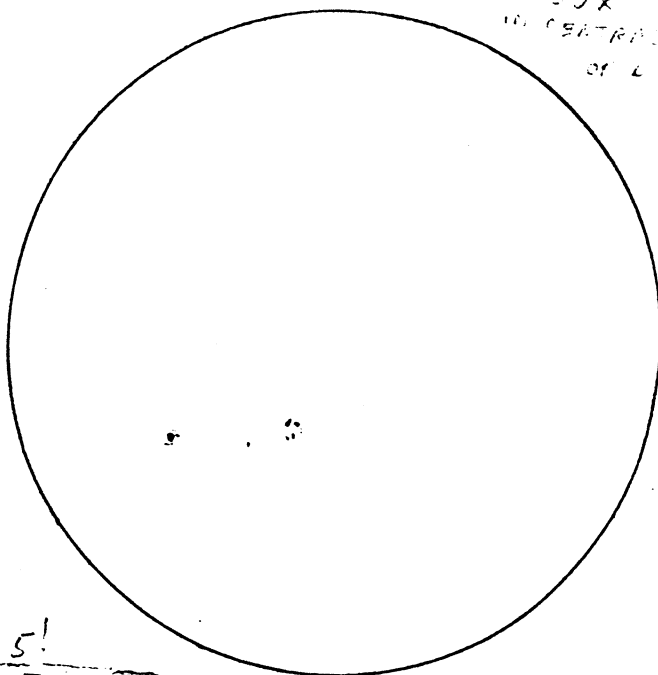
NOV. 4! 12:30 PM

900 mm f8

FEW CLOUDS IN
CLEAR SKIES

36X

GRAIN GLIMPSED AT 50X
IN CENTRAL AREA
OF L.M.



5!
NOV. 5! OVERCAST
LATE PM.

NOV. 6! CLEAR WITH
CLOUD STREAKS

NOV. 7! CLEAR AM.
FOG PM.

NOV. 8! RAIN

NOV. 8! RAIN AM
CLEAR PATCHES

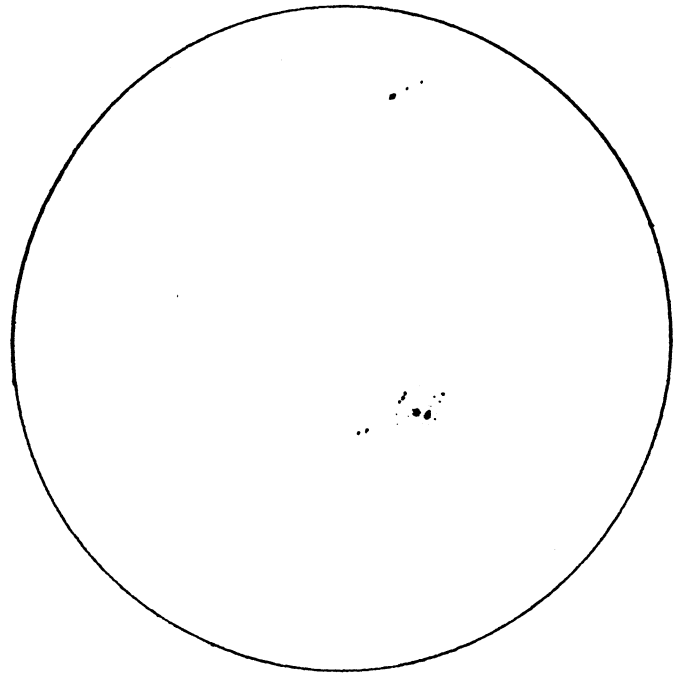
NOV. 9! CLEAR SKIES
STRONG BRIZZ
WIND

8

Oct. 22/86 12:30 P.M. E.D.T. 900mm fs
36x

HAZE IN CLEAR SKIES

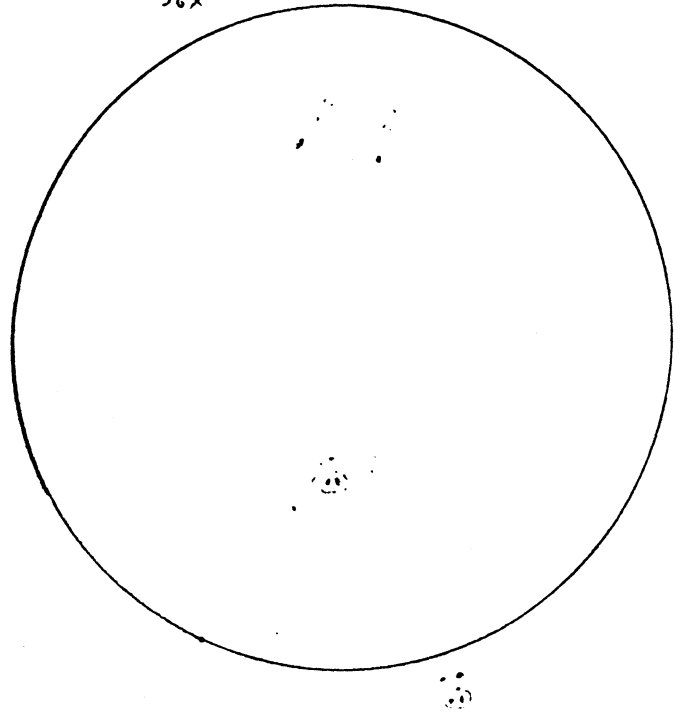
10/23
CLOUDS



12:30 E.D.T.

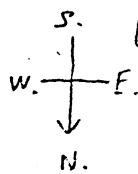
10/24 HIGH CLOUDS IN SOUTHERN SKIES
NORTHERN SKIES CLEAR MOVING NORTH

900 mm fs
36x



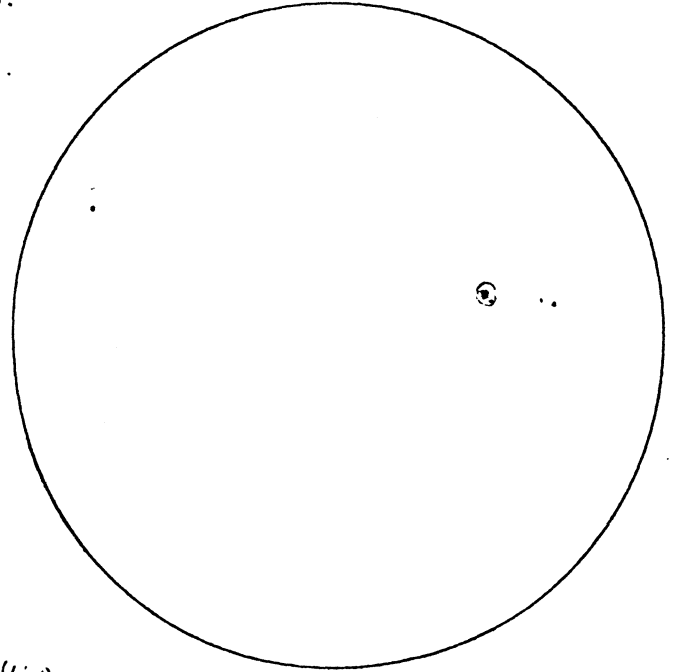
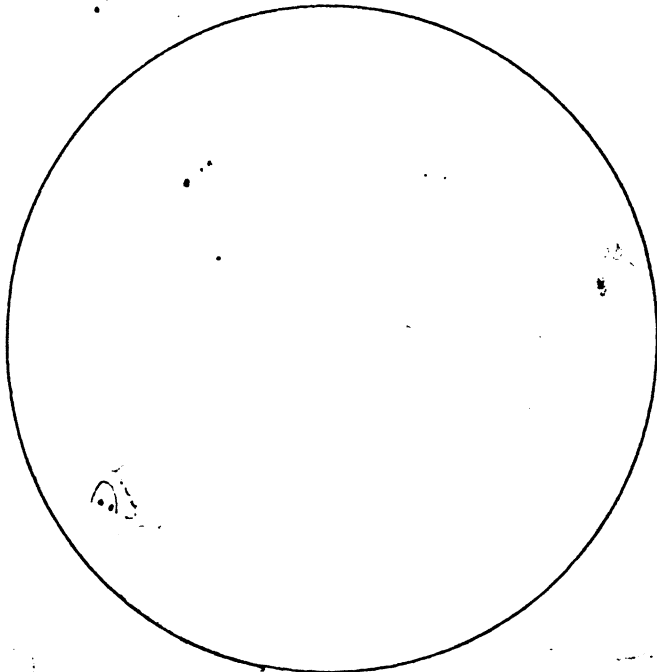
OCT 25 P.M. CLOUDY
263 cloudy
27

OCT. 28 10:30 E.S.T.
CLOUDS, HAZE IN
BETWEEN CLOUDS, IN
CLEAR SKIES



OCT. 29 P.M.
CLOUDY

OCT. 30
DRIFTING BROKEN CLOUD DECK
FOLLOWED BY LARGE CLEAR AREA
FOLLOWED BY BROKEN CLOUD DECK
TIME ONLY FOR QUICK DRAWING



900 mm fs
36x

RAIN VISIBLE
AROUND LIMB

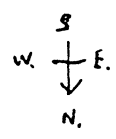
F FACULA
P PENUMBRA
U UMBRA

OCT. 30 12:45 E.S.T.
900 mm fs
36x

(7)

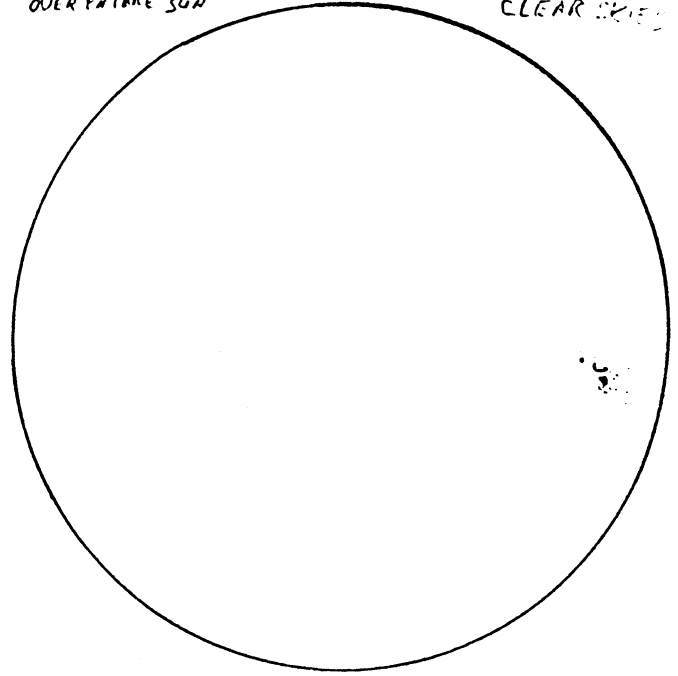
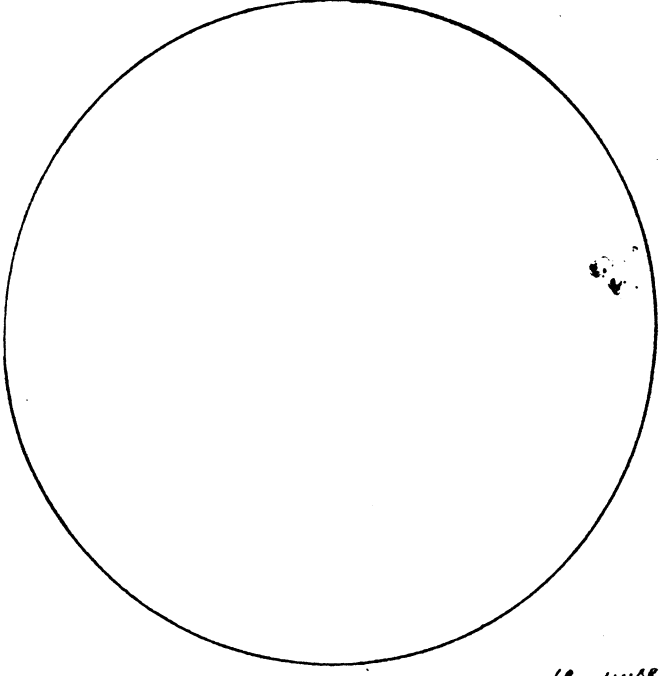
OCT. 18/86 12:45 EDT
CLEAR SKIES WITH CLOUDS

900mm f8
36x



OCT. 19/86 2:15 E.D.T.
GRAIN EASILY VISIBLE
OVER ENTIRE SUN

900mm f8
36x
CLEAR SKIES



☉ UMBRA
PENUMBRA
☁ CLOUDS

OCT 20/86 12:30 EDT
CLEAR SKIES

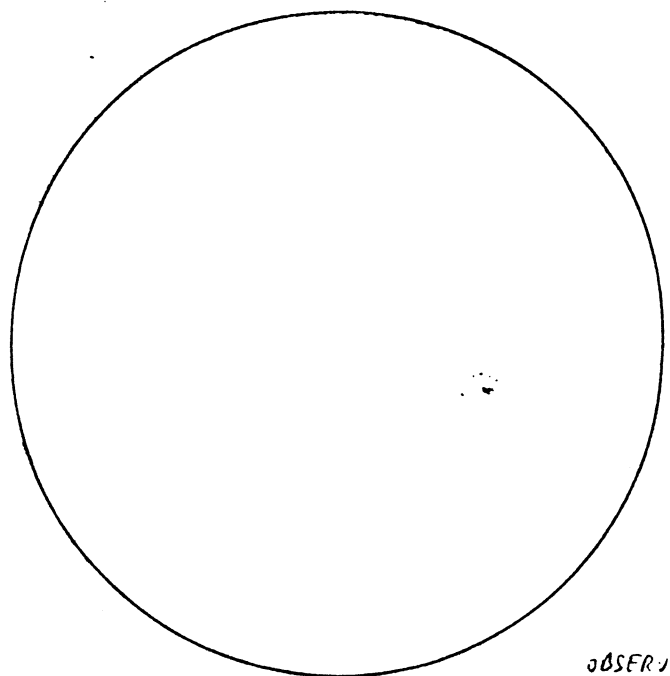
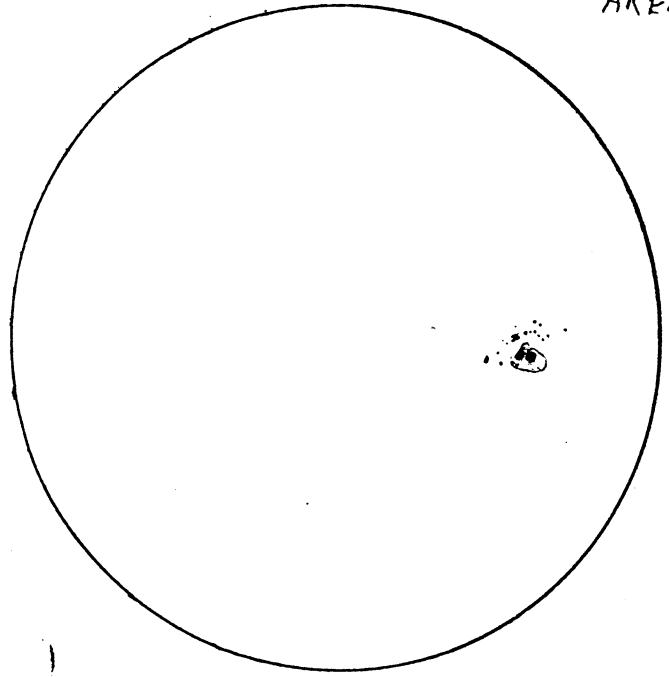
900mm f8
36x

GRAIN VISIBLE IN SPOT
AREA

OCT. 21/86 6:00 PM EDT

900mm f8
36x

HIGH WISPY CLOUDS
SPOTS SEEN IN BETWEEN
CLOUD BANDS

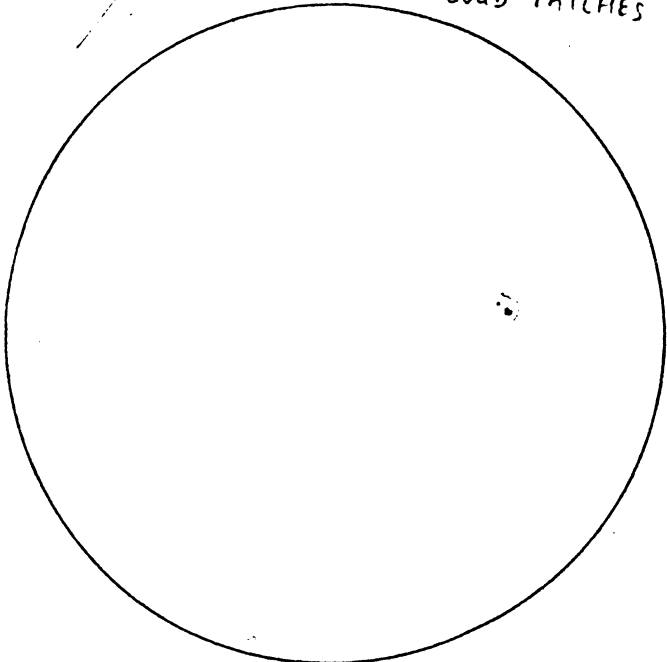


OBSERVED
GLIMPSED?

⑥

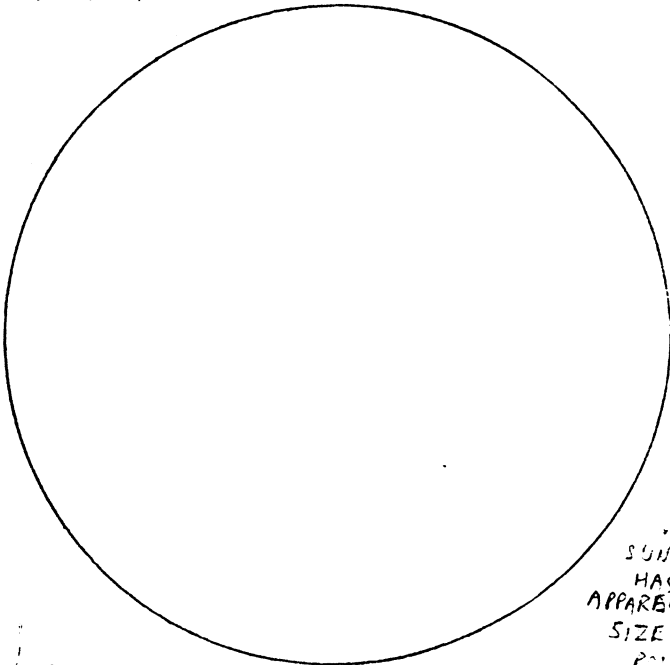
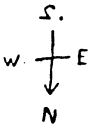
9/15
NO SPOTS
35X

10/2 '86 900 mm
75X 5:15 P.M. EDT.
CLEAR SKIES IN BETWEEN
CLOUD PATCHES



COPIED FROM SKETCH ON ENVELOPE

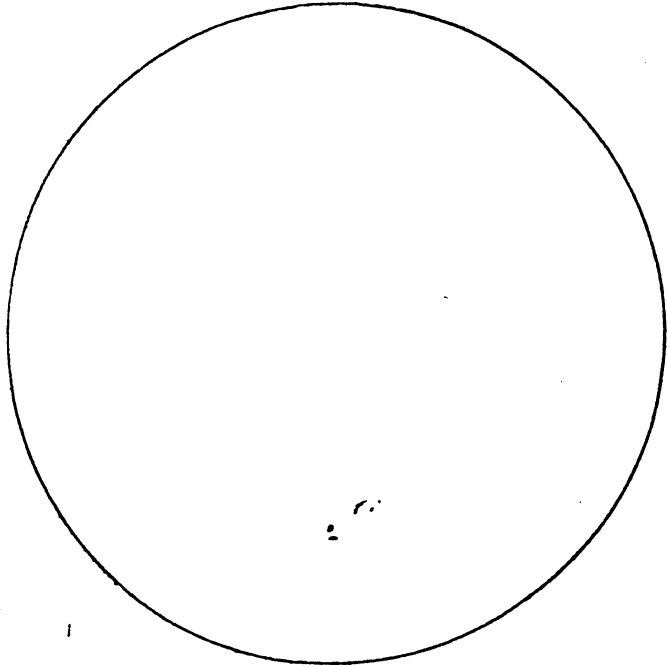
10/5 5:00 EDT. 700 mm
f8 35X
CLEAR SKIES
WHITISH SUN
GRI 1 1/2 IN



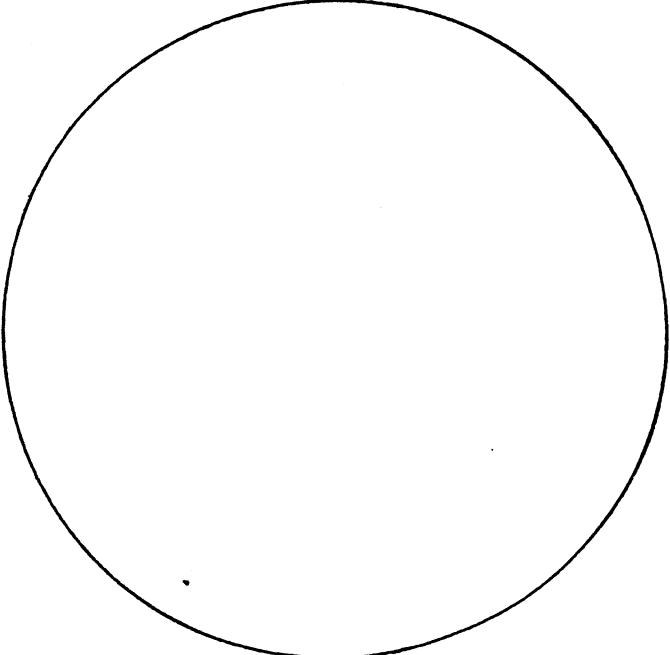
SUNSPOT
HAS
APPARENT
SIZE OF
POINT

700 mm
30 mm; 35X NO SPOTS
ONE SPOT

10/7 12:45 EDT. 900 mm
f8 50X
CLEAR SKIES



10/11 3:30 P.M. EDT f8 35X
SLIGHT HAZE



APRIL 27/86
4:00 PM EDT

SKIES CLEAR

E of 20th
18 SPOTS SEEN

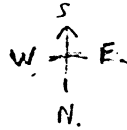
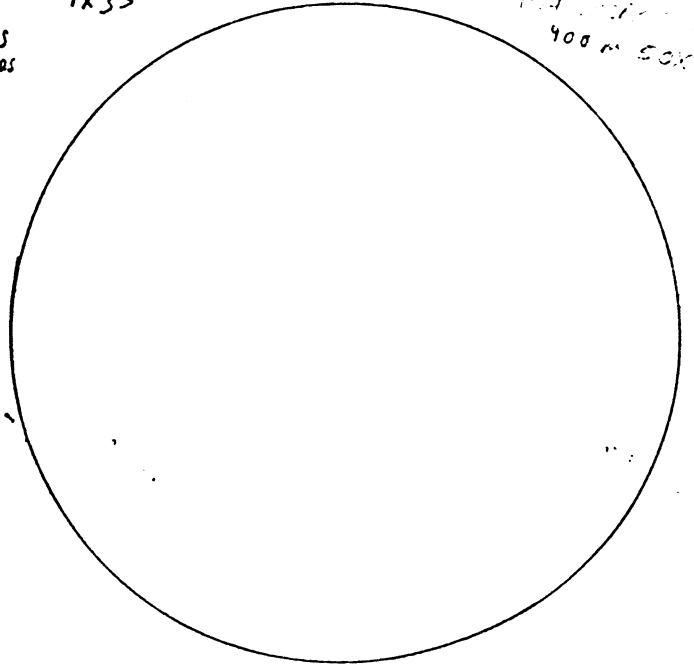
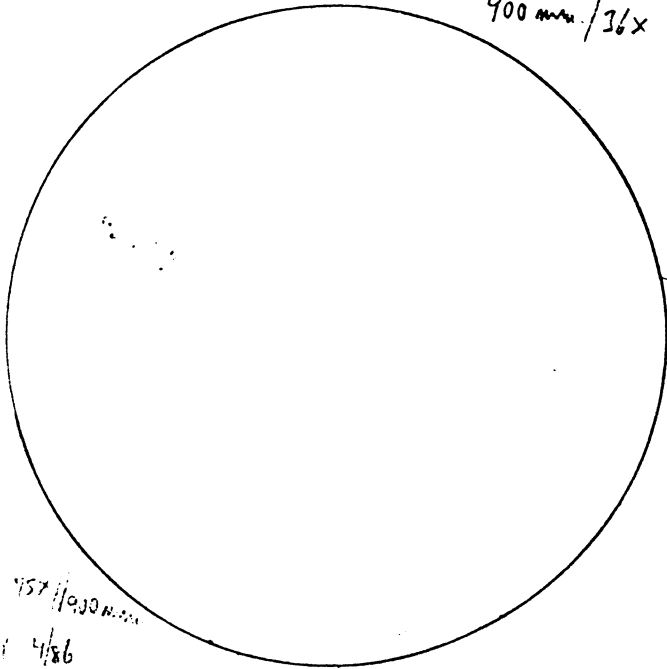
900 mm / 36x

6/14
CLEAR SKIES
WITH CLOUDS
OF SPOTS
(0)

6/14 - 7/4 # SPOTS (0)
7x35

7/5 - 86
2:30 PM EDT

900 mm / 50x



4:57 / 900 mm

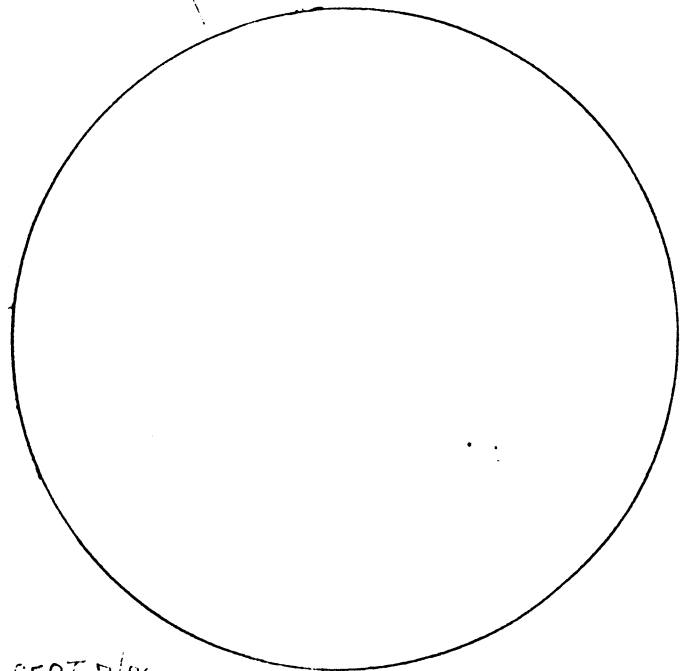
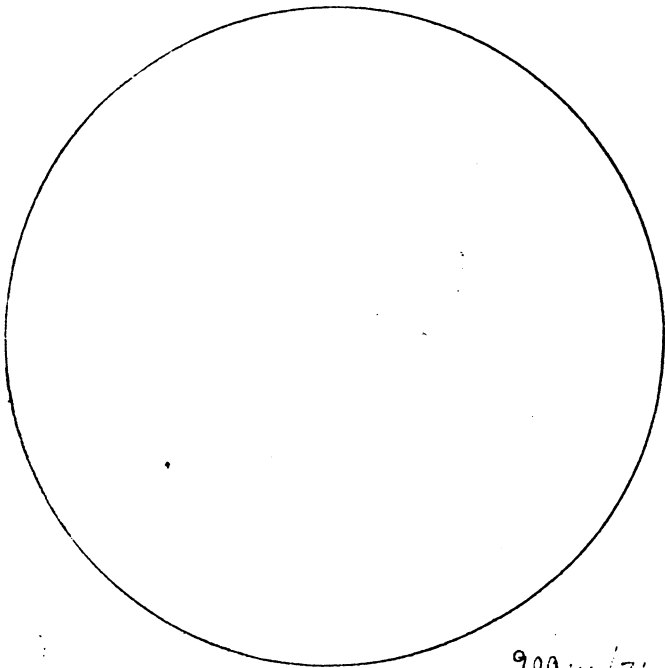
4/86
SPOTS SEEN

GRAIN OBSERVED ALONG
SOUTHERN AND NORTHERN LIMB

AUG. 31/86



SEPT. 7/86



900 mm / 36x

SEPT 7/86

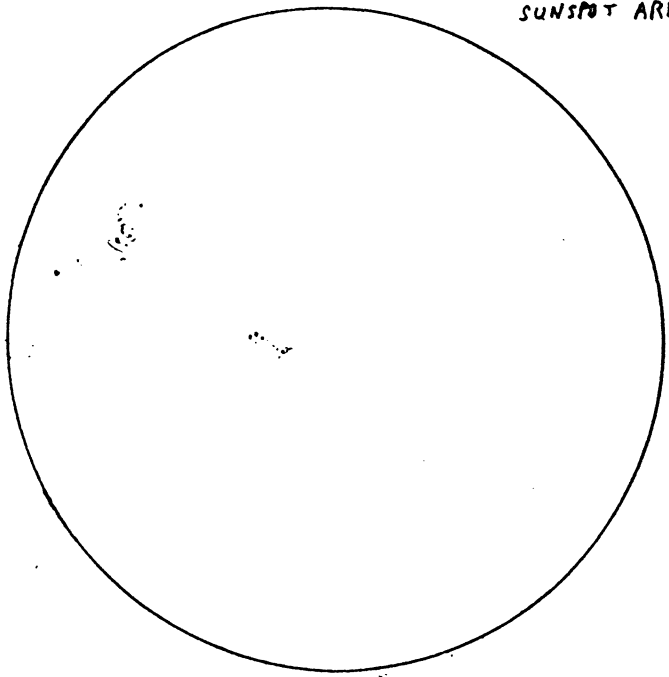
0:00 2/10

of spots (10x) + 1 = 11

SKIES CLEAR

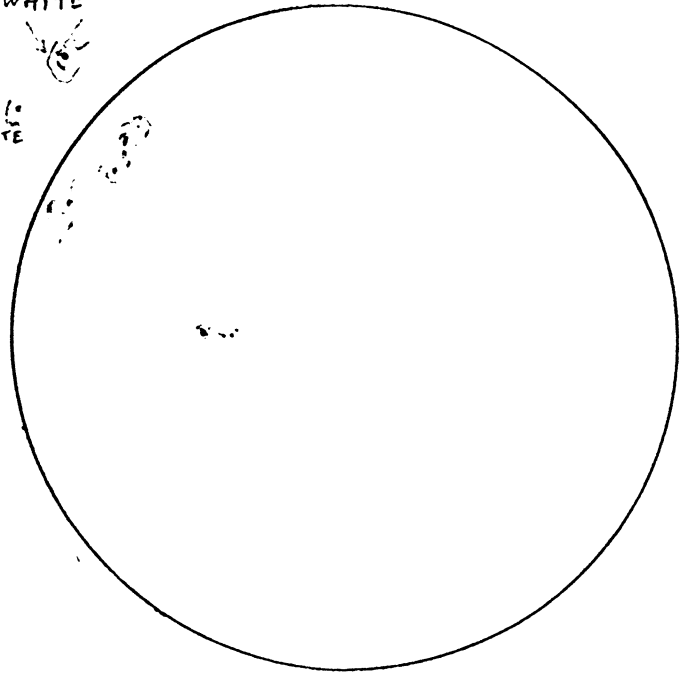
5:15 PM EDT MOSTLY CLEAR CLEAR PATCHES
900 mm / 50x 2 BRIEF OBSERVATIONS

JULY 10/85 7:30 P.M. E.O.T.
900 mm/18mm CLEAR SKIES GRAIN EASILY
SEEN IN MAIN
SUNSPOT AREA

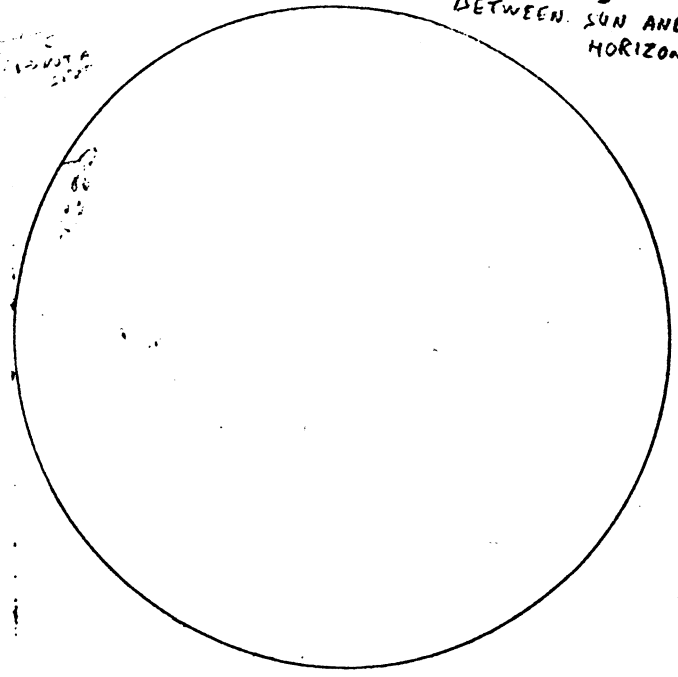


JULY 11/85 6:30 P.M. E.O.T.
900 mm/18mm CLEAR SKIES

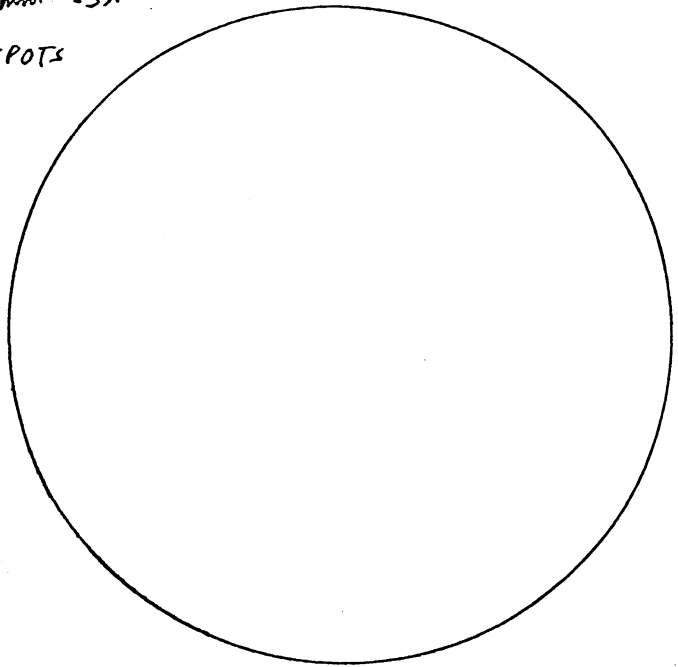
UMBRA
PENUMBRA
WHITE
WHITE



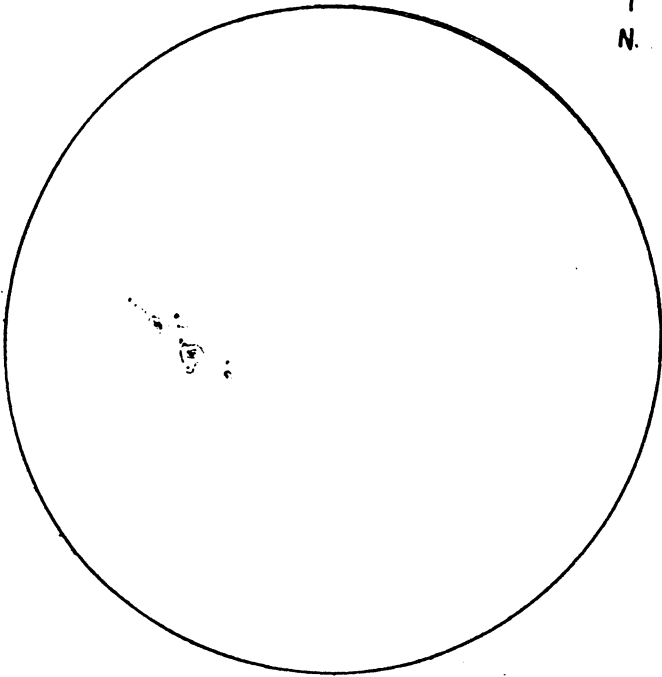
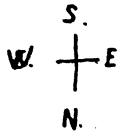
JULY 12/85 6:15 P.M. E.O.T.
900 mm/18mm CLEAR TO HAZY SKIES
NO GRAIN OBSERVED
CUMULUS CLOUDS
BETWEEN SUN AND
HORIZON



1/2/86
PARTLY CLEAR SKIES
60 mm 35X
NO SPOTS

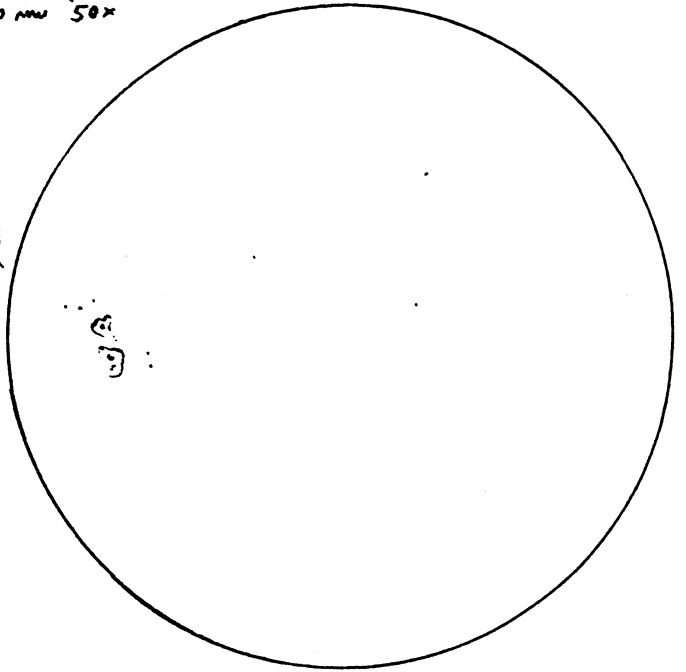


4/27/85 1:30 PM E.S.T.
900mm 50x
CLEAR SKIES



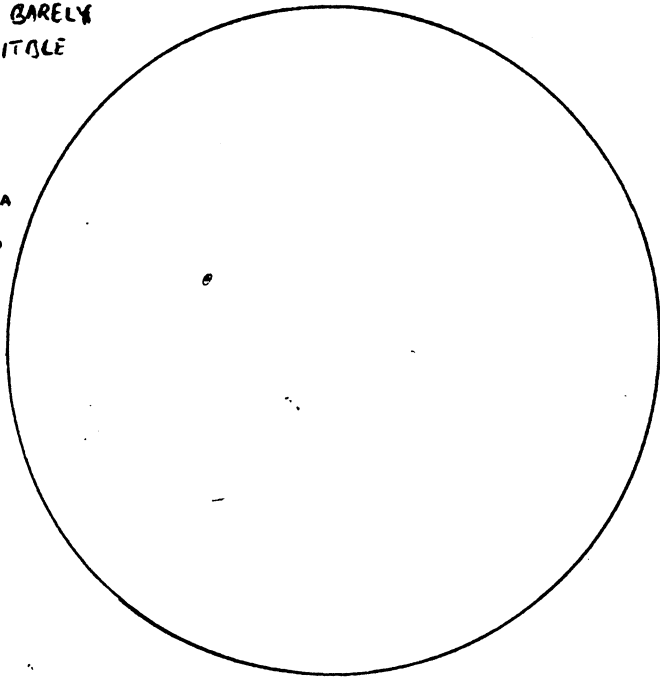
4/28/85 10:30 AM. E.O.T. CLEAR SKIES
900mm 50x

↓
DOTTEN
OF
SPOT →
D
TOO
LOW



5/23/85 3:30 P.M. E.D.T.
900mm 50x CLEAR SKIES

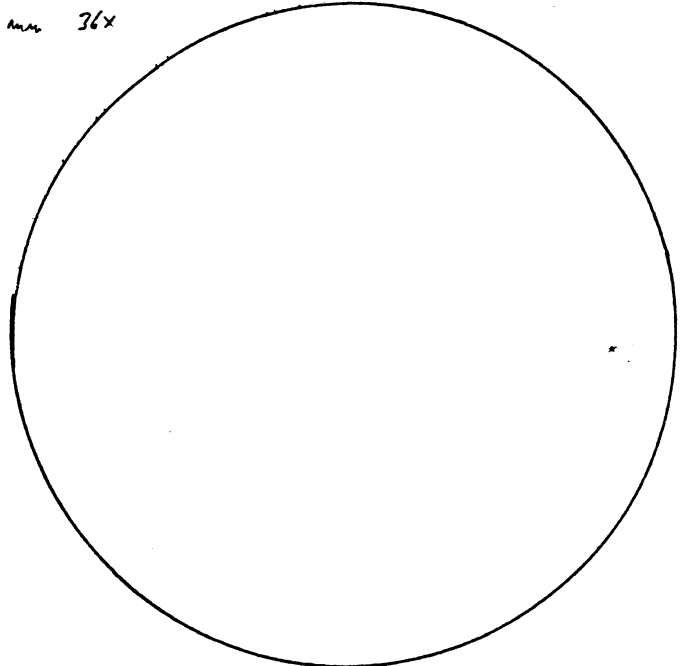
RAIN BARELY
RECEPTILE



4HORA
SULD
ROOD

↑
← 86mm →

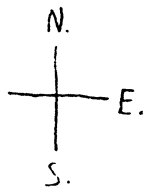
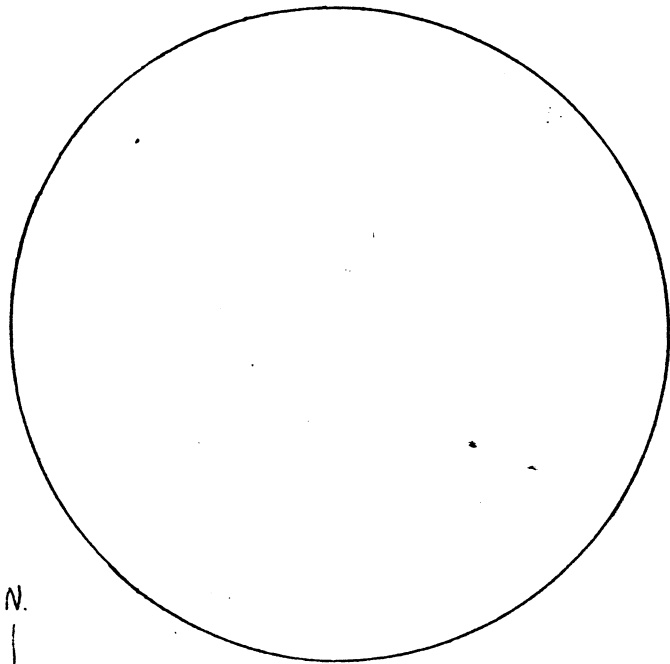
6/30/85 CLEAR SKIES
3:30 PM. E.D.T.
900mm 36x



WHITE
CLOUDS
PENUMBRA
VISIBLE AS
SMALL RING

APPARENT DIAMETER OF SUN = 4.5 mm

700 M NOV. 23/84 f 11.5 $\frac{700 \text{ mm}}{20 \text{ mm}}$



DIRECTION OF
SUNSPOTS

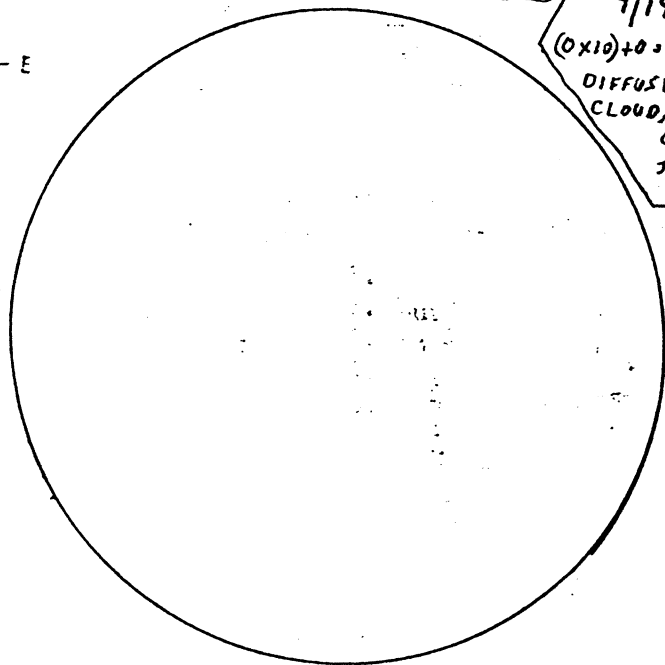
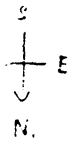
NOV. 23/84
12:10 PM
EST.

SUNSPOTS 2/9/85 (1x10)+1=11
50% CLOUDS IN CLEAR SKIES

36xM

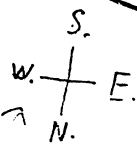
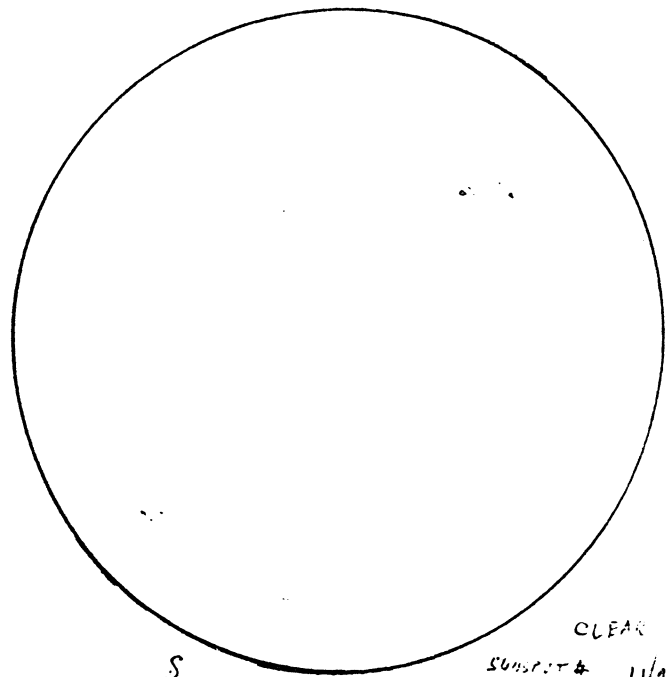
4/19/85

(0x10)+0=0
DIFFUSE
CLOUD, TO
CLEAR
75xM



NOV. 23/84 f 8 $\frac{900 \text{ mm}}{25 \text{ mm}}$

900 M



CLEAR

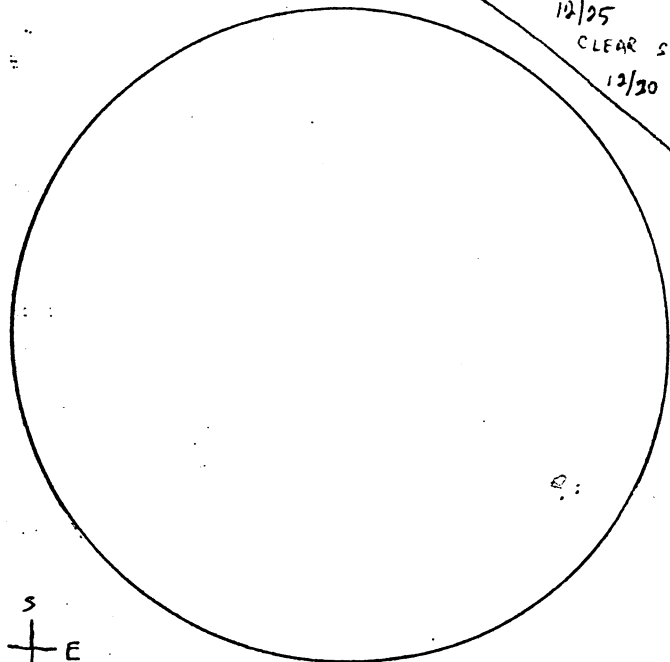
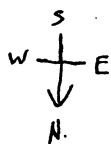
SUNSPOT # 11/23/84
8x10+2=88

CARDINAL
DIRECTIONS

4/21/85

SUNSPOT # 12/23/84
(0x10)+0=0
CLOUDS
SLIGHT OVERCAST

12/25
CLEAR SKIES
12/30 *
1/26



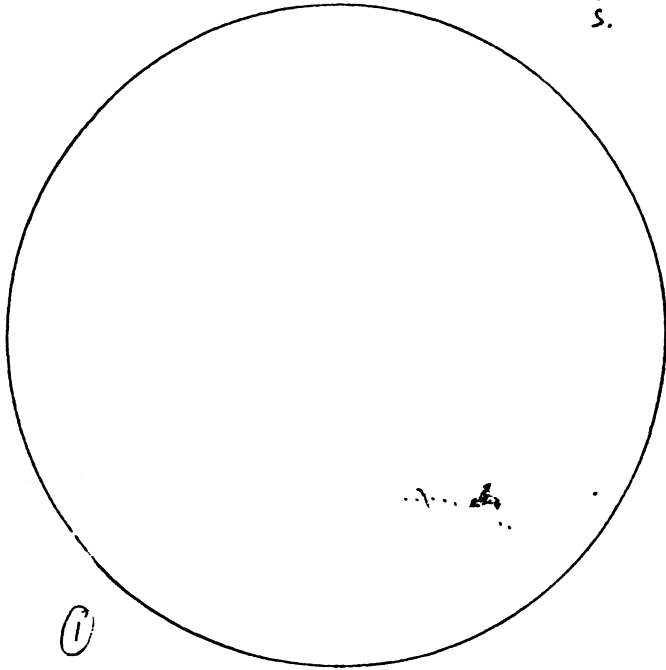
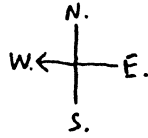
4/21/85

CLOUDS (1)

DEC. 7/83 12:30 P.M. E.S.T.

f 11.6

$\frac{700 \text{ mm}}{20 \text{ mm}}$

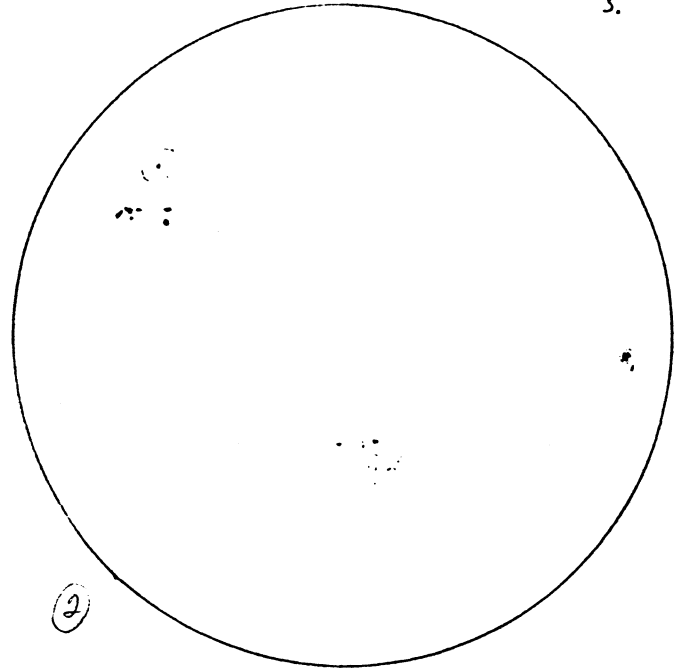
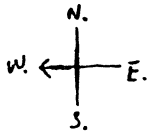


①

DEC. 10/83 12:30 P.M. E.S.T.

f 11.6

$\frac{700 \text{ mm}}{20 \text{ mm}}$

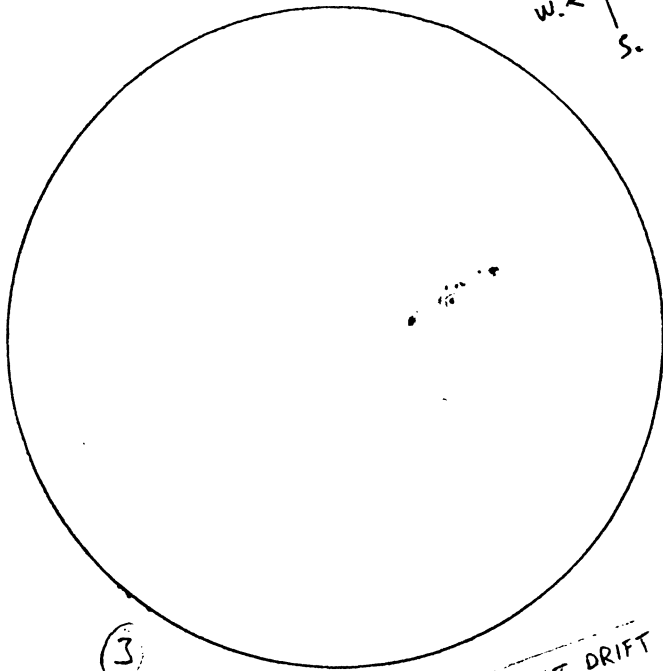
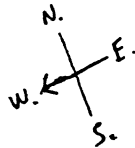


②

MAR. 31/84 2:45 P.M. E.S.T.

f 11.6

$\frac{700 \text{ mm}}{20 \text{ mm}}$



③

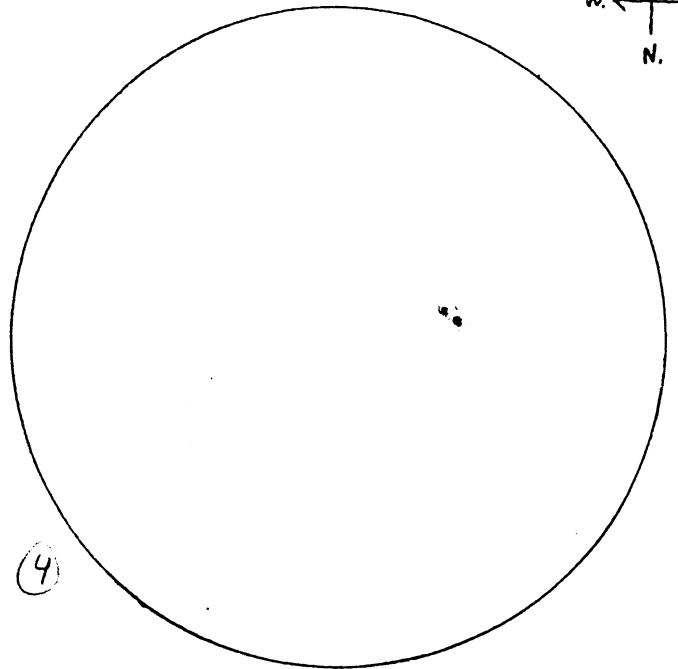
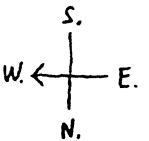
← APPARANT DRIFT

OCT. 2/86 5:15 P.M. E.D.T

f 8

$\frac{900 \text{ mm}}{12 \text{ mm}}$ (75x)

#5



④

COPIED FROM ORIGINAL SKETCHES

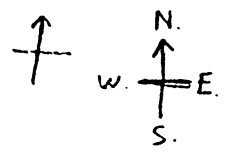
SEPT. 18/89

8:30 P.M.

①

12:30 PM
DEC. 10/27

35X



$$\text{LOG } 100 \cdot 2 \div 5 = 0.4^{10} \cdot 2.5$$

$$\text{LOG } 2.5 \times \frac{1}{\text{LOG } 100} = \frac{1}{5}$$

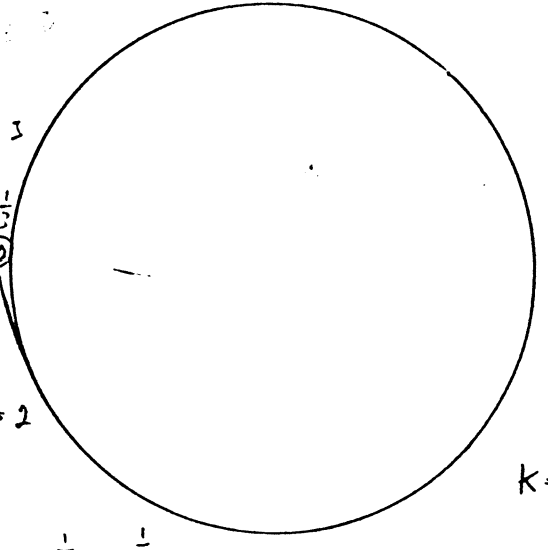
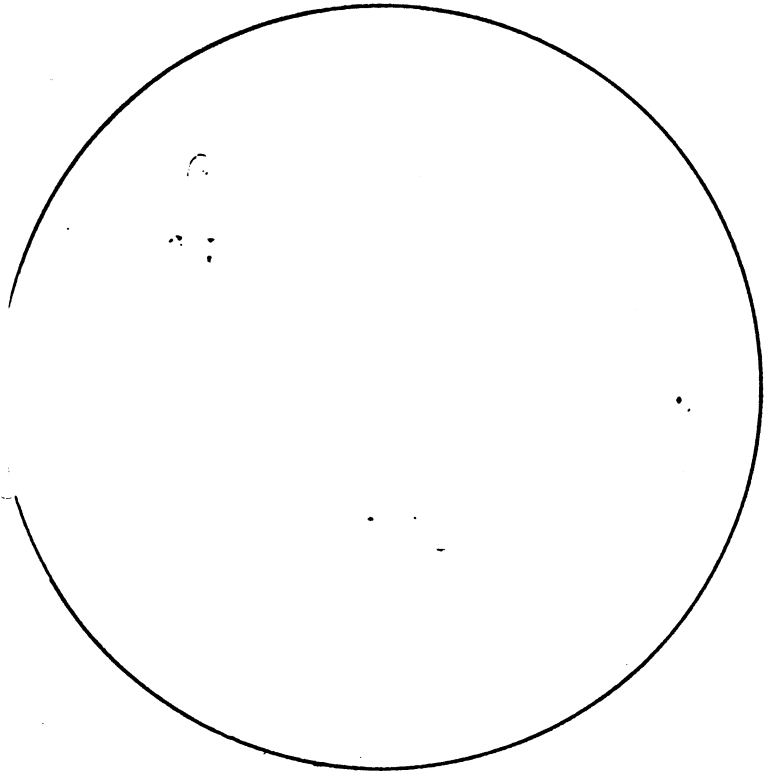
$$12 \times 3 = 36$$

$$36 \times \frac{1}{3} = 12$$

$$12 \div 3 = 4$$

2/0/83

$$12 \times \frac{1}{3} = 4$$



4 12 3

$$4 \times \frac{1}{2} = \frac{1}{2}$$

$$25 \times \frac{1}{2} = 2$$

$$100 \times \frac{1}{25} = \frac{1}{5}$$

$$2.5 \times 5 = 100$$

$$100 \times \frac{1}{5} = 2.5$$

k = 15

5 > 1

-5 < -1

1

556 The day Thou gavest, Lord, is ended

ST. CLEMENT 9 8 9 8

Clement Cotterill Scholefield,
1839-1904

on a
1657

O
with
are
is

rs
e
r
uld

-1900

1. The day Thou gav - est, Lord, is end - ed; The dark - ness
2. We thank Thee that Thy church, un-sleep - ing, While earth rolls
3. As o'er each con - ti - nent and is - land The dawn leads

falls at Thy be - hest: To Thee our morn - ing hymns as -
on - ward in - to light, Through all the world her watch is
on an - oth - er day, The voice of prayer is nev - er

end - ed, Thy praise shall sanc - ti - fy our rest.
keep - ing, And rests not now by day or night.
si - lent, Nor dies the strain of praise a - way.

4. The sun that bids us rest is waking
Our brethren 'neath the western sky,
And hour by hour fresh lips are making
Thy wondrous doings heard on high.

5. So be it, Lord! Thy throne shall never,
Like earth's proud empires pass away;
Thy kingdom stands and grows for ever,
Till all Thy creatures own Thy sway.

A - men.

EVENING

John Ellerton, 1826-1893

The Stranger of Galilee

Mrs. C. H. MORRIS

Mrs. C. H. MORRIS

Solo or Quartet

1. In fan - cy I stood by the shore, one day, Of the bean - ti - ful marm'ring
 2. His leek of com - pas - sion, His words of love, They shall nev - er for - got - ten
 3. I heard Him speak peace to the an - gry waves, Of that tur - bu - lent, rag - ing
 4. Come ye, who are driv - en, and tempest - tossed, And His gra - cious sal - va - tion

1. Of the bean - - - ti - ful

sea; . . . I saw the great crowds as they thronged the way of the Stranger of
 be, . . . When sin - sick and helpless He saw me there, This Stranger of
 sea; . . . And lo! at His word are the wa - ters stilled, This Stranger of
 see; . . . He'll quiet life's storms with His "Peace, be still!" This Stranger of
 murm'ring sea;

1. Of the Stran

Gal - i - lee; . . . I saw how the man who was blind from birth, In a
 Gal - i - lee; . . . He show'd me His hand and His riv - en side, And He
 Gal - i - lee; . . . A peace - ful, a qui - et, and ho - ly calm, Now and
 Gal - i - lee; . . . He bids me to go and the sto - ry tell What He
 ger of Gal - i - lee;

The Stranger of Galilee

mo - ment was made to see; . . . The lame was made whole by the matchless skill
 whispered "It was for thee!" . . . My bur - den fell off at the pierc - ed feet
 ev - er a - bides with me; . . . He hold - eth my life in His might - y hands,
 ev - er to you will be, . . . If on - ly you let Him with you a - bide,
 I. mo - - ment was made to see;

Chorus

Of the Stranger of Gal - i - lee. And I felt I could love Him for -
 Of the Stranger of Gal - i - lee.
 This Stranger of Gal - i - lee.
 This Stranger of Gal - i - lee. (4 v.) Oh, my friend, won't you love Him for -

ff . . . er, So gra - cious and ten - der was Hel I
 ev - - - er? So gra - cious and ten - der was Hel Ac -
 ev - er and av - er, so ten - der was Hel

cres. claimed Him that day as my Sav - ior, This Stranger of Gal - i - lee.
 cept Him to - day as your Sav - ior, This Stranger of Gal - i - lee.
 Lord and my Sav - ior,

rit. e dim.

