

SOLAR DISK DRAWING

Observer: Mike Hottel
 Location: Front Yard - Broomfield, CO
 Date/Time: 3/7/04 10:10A (UT)

Sky:

Seeing Good Clouds Clear Wind Calme
 Telescope Reflector Type Newtonian
 Aperture Used 8"
 Focal Length 618 Eyepiece 19mm
 Filter Reader

Observations:

Direct or Projected (circle one)

Total Sunspot Count:

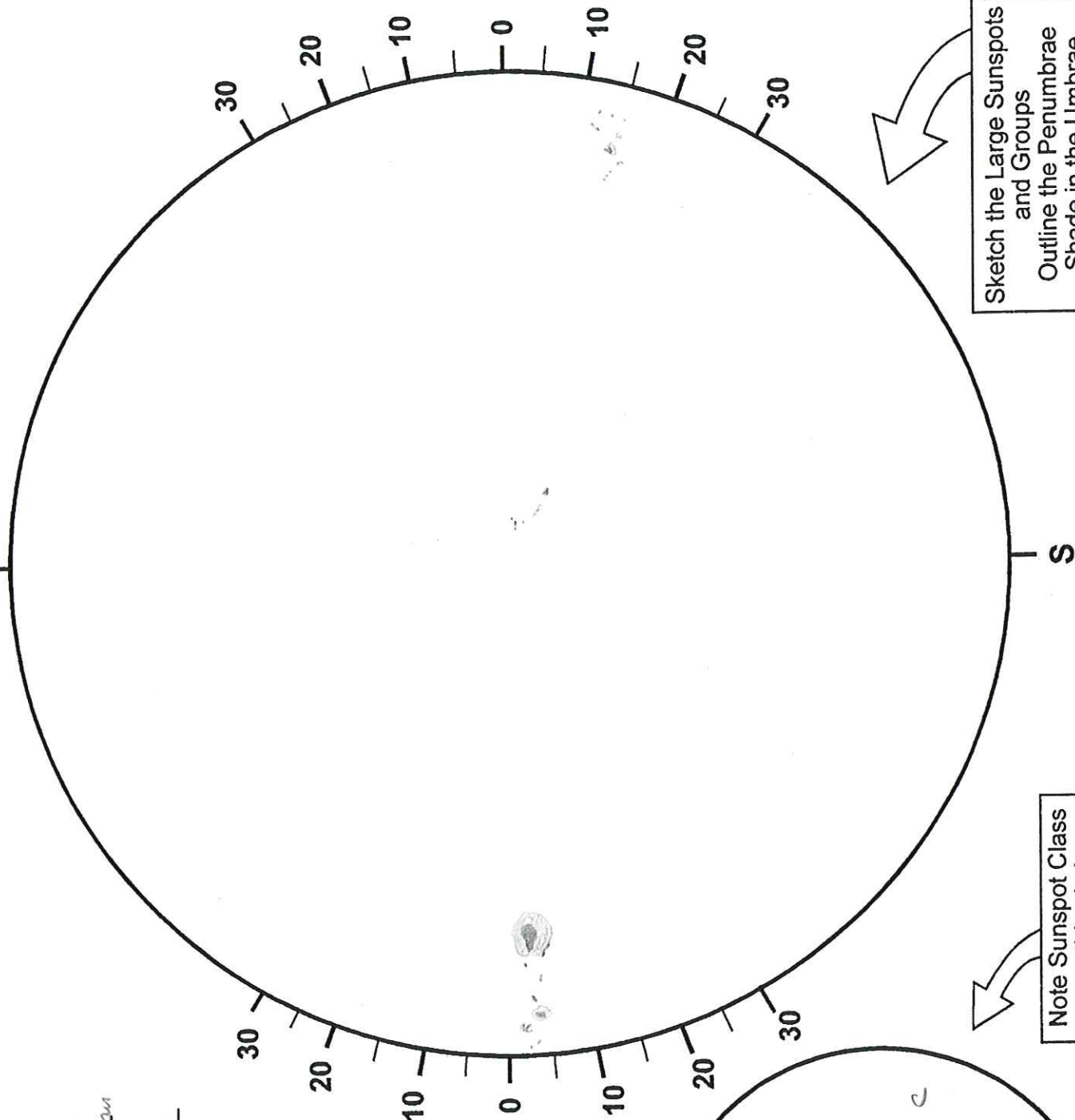
(N=north of solar equator, S=south)

Groups: N 0 + S 3 = 3

Spots: N 0 + S 36 = 36

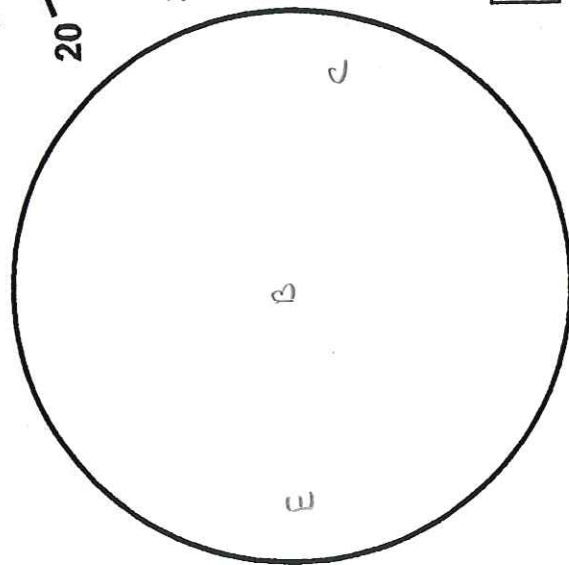
Wolf Sunspot Number (R):

R = 10G + S = 66



Sketch the Large Sunspots
 and Groups
 Outline the Penumbrae
 Shade in the Umbrae

Note Sunspot Class
 on this circle



SOLAR DISK DRAWING

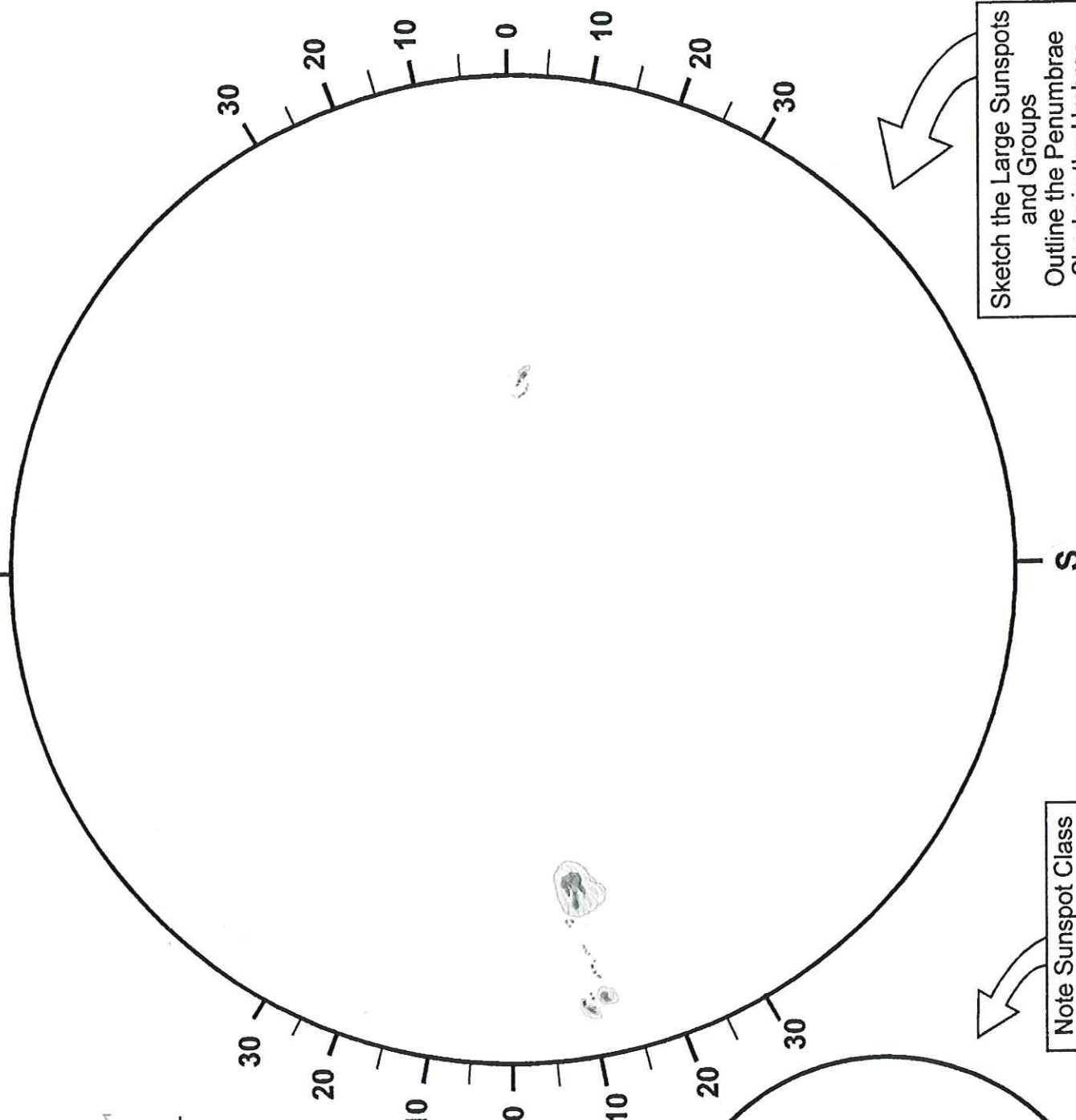
Observer: Mike Hotter
 Location: Baer Parking Lot - Boulder, CO
 Date/Time: 3/8/04 11:54A (MT)

Sky: Light
 Seeing: Good Clouds: Clear Wind: NE
 Telescope: Reflector Type: Newtonian
 Aperture Used: 8"
 Focal Length: f/8 Eyepiece: 19mm
 Filter: Reader

Observations:
Direct or Projected (circle one)

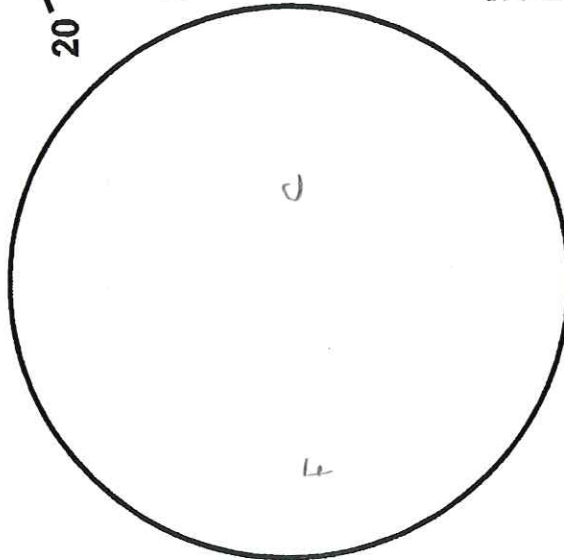
Total Sunspot Count:
 (N=north of solar equator, S=south)
 Groups: N 0 + S 2 = 2
 Spots: N 0 + S 27 = 27

Wolf Sunspot Number (R):
 $R = 10G + S = 47$



Sketch the Large Sunspots and Groups
 Outline the Penumbrae
 Shade in the Umbrae

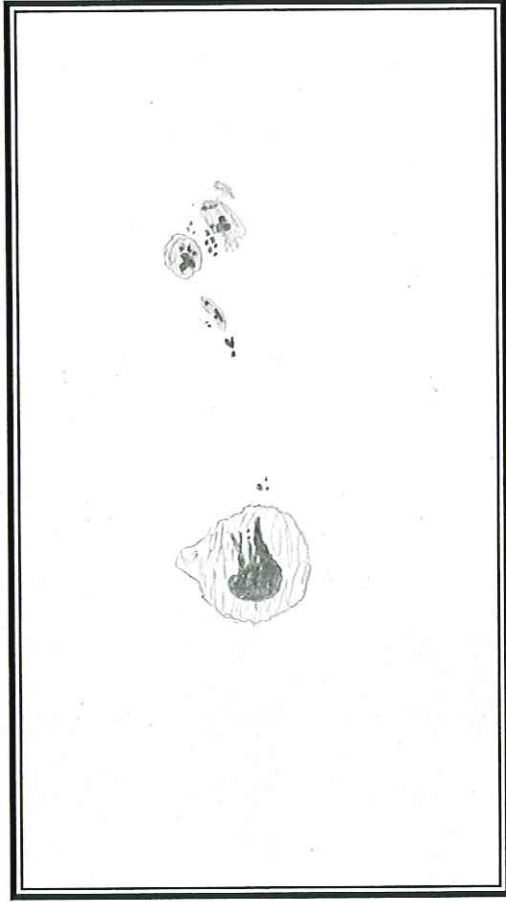
Note Sunspot Class on this circle



Sunspot Drawing

Observer Mike Notter
 Universal date/time: 3/8/04 12:01P
 Sky quality: Good
 (Excellent, good, fair, poor)
 Seeing in arc seconds: 1.0
 (smallest detail seen where a photospheric granule is 1.5-2 arc seconds)
 McIntosh Sunspot Classification: Fh1

Location: Ball Parkers Lot - Boulder, CO
 Telescope effective aperture: 8"
 Telescope focal length: 418
 Eyepiece focal length: 10mm
 Magnification: 162x
 Filter type: Baader

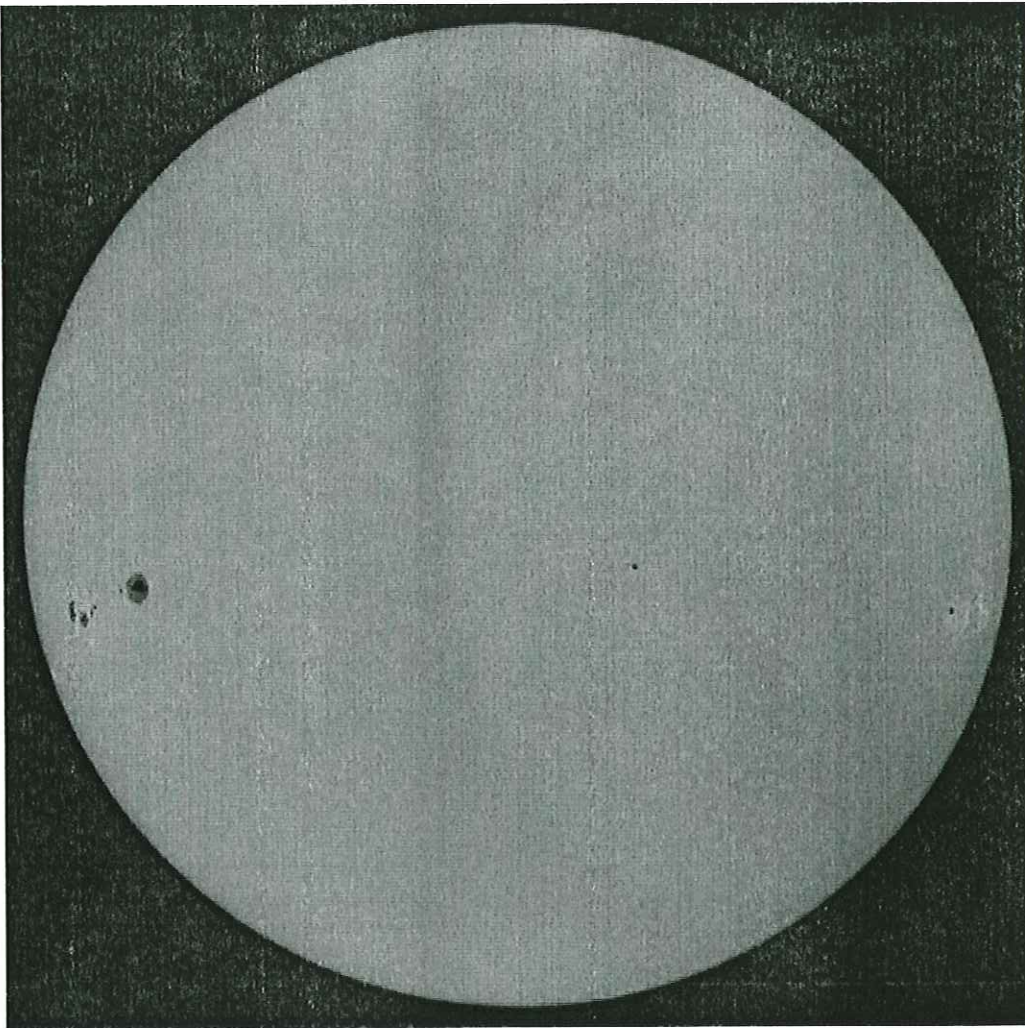


Label the following on your sunspot drawing:

- Umbra
- Penumbra
- Facula
- Light bridge (if present)
- Penumbra fibril (if visible)
- Show *approximate* direction of Solar North with an arrow

Answer the Following:

- Is granulation visible? Yes: ☒ No: ☐
- Is penumbral grain visible? Yes: ☒ No: ☐
- Does the drawing show the Wilson effect? Yes: ☒ No: ☐



SOLAR DISK DRAWING

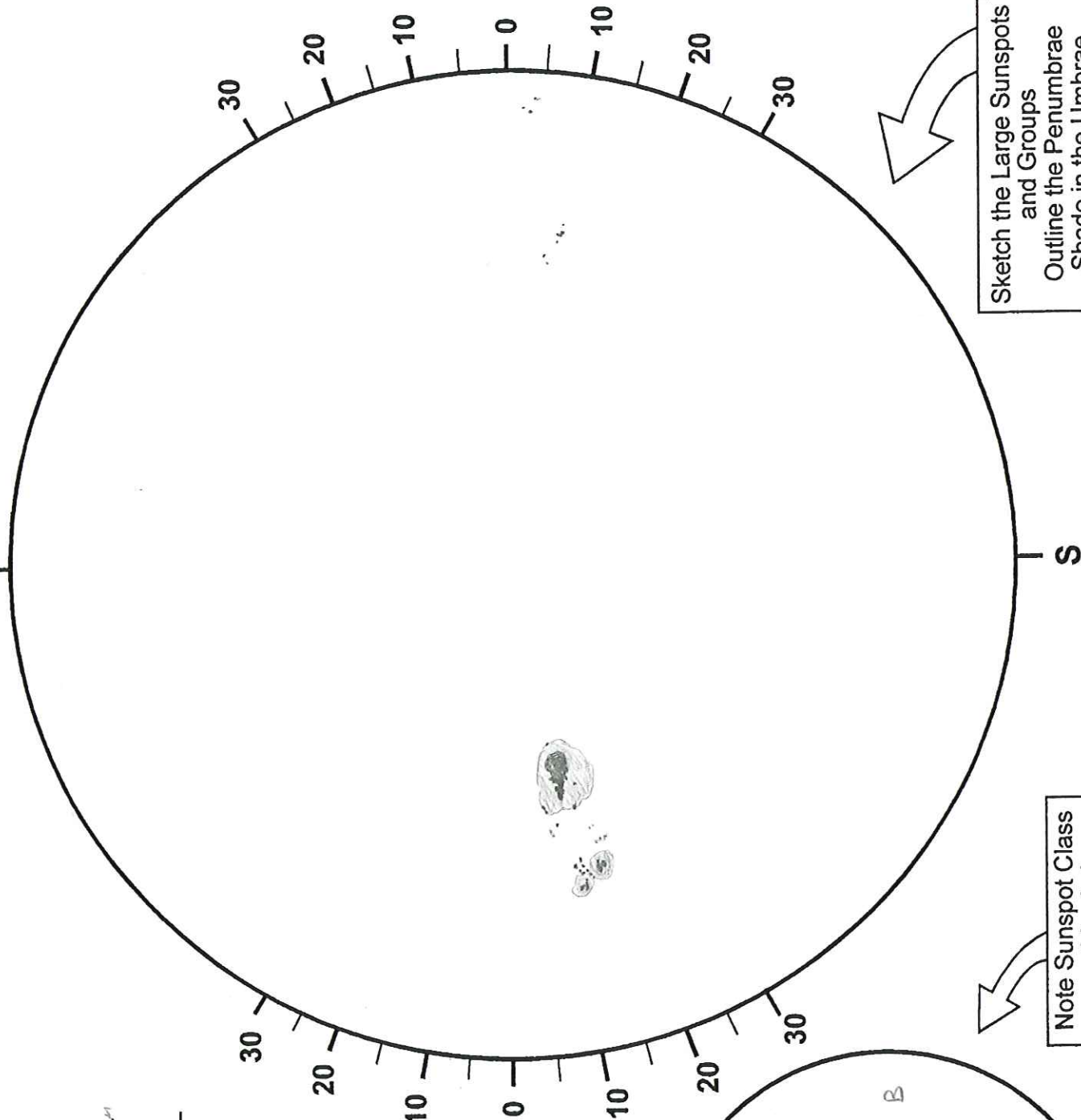
Observer: Mike Hotter
 Location: Ball Park, CO
 Date/Time: 3/9/04 11:55 AM (MST)

Sky: Light
 Seeing: Good Clouds: Clear Wind: S
 Telescope: Reflector Type: Newtonian
 Aperture Used: 8"
 Focal Length: 218 Eyepiece: 19mm
 Filter: Boader

Observations:
Direct or Projected (circle one)

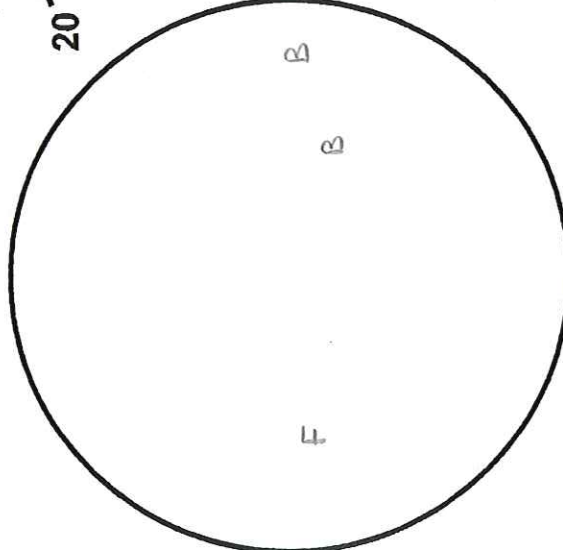
Total Sunspot Count:
 (N=north of solar equator, S=south)
 Groups: N 0 + S 3 = 3
 Spots: N 0 + S 38 = 38

Wolf Sunspot Number (R):
 $R = 10G + S = 68$



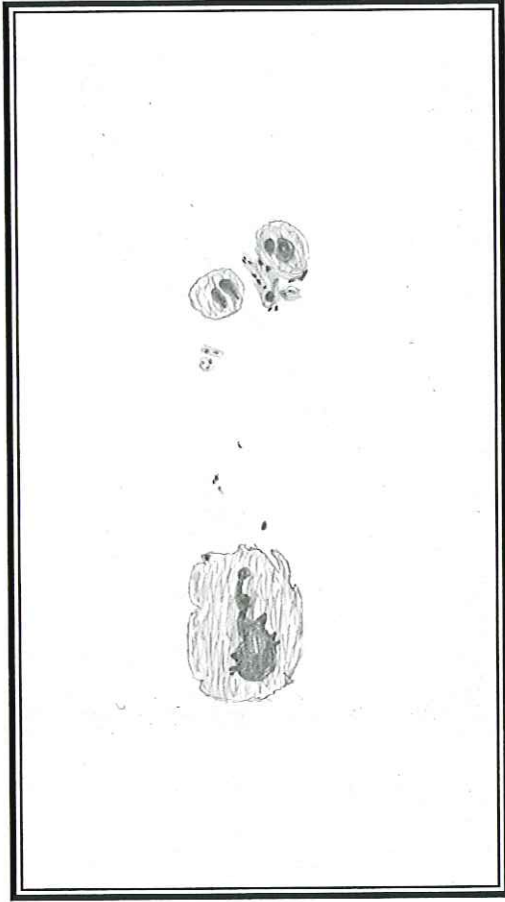
Sketch the Large Sunspots and Groups
 Outline the Penumbrae
 Shade in the Umbrae

Note Sunspot Class on this circle



Sunspot Drawing

Observer Mike Hottel Location: Boulder CO
 Universal date/time: 3/19/04 12:15 PM Telescope effective aperture: 8"
 Sky quality: Excellent Telescope focal length: 64"
 (Excellent, good, fair, poor) Eyepiece focal length: 10 mm
 Seeing in arc seconds: 1.0 Magnification: 168x
 (smallest detail seen where a photospheric granule is 1.5-2 arc seconds) Filter type: Baader
 McIntosh Sunspot Classification: F11

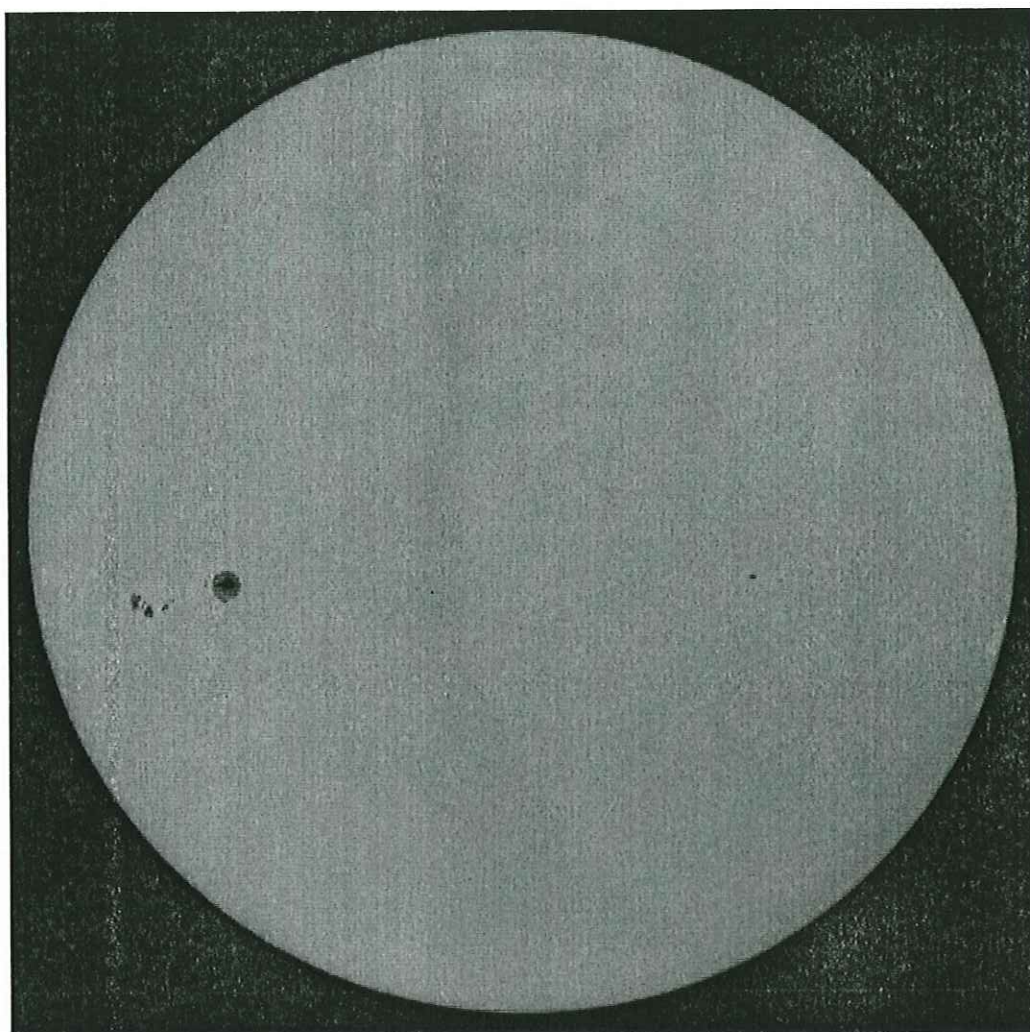


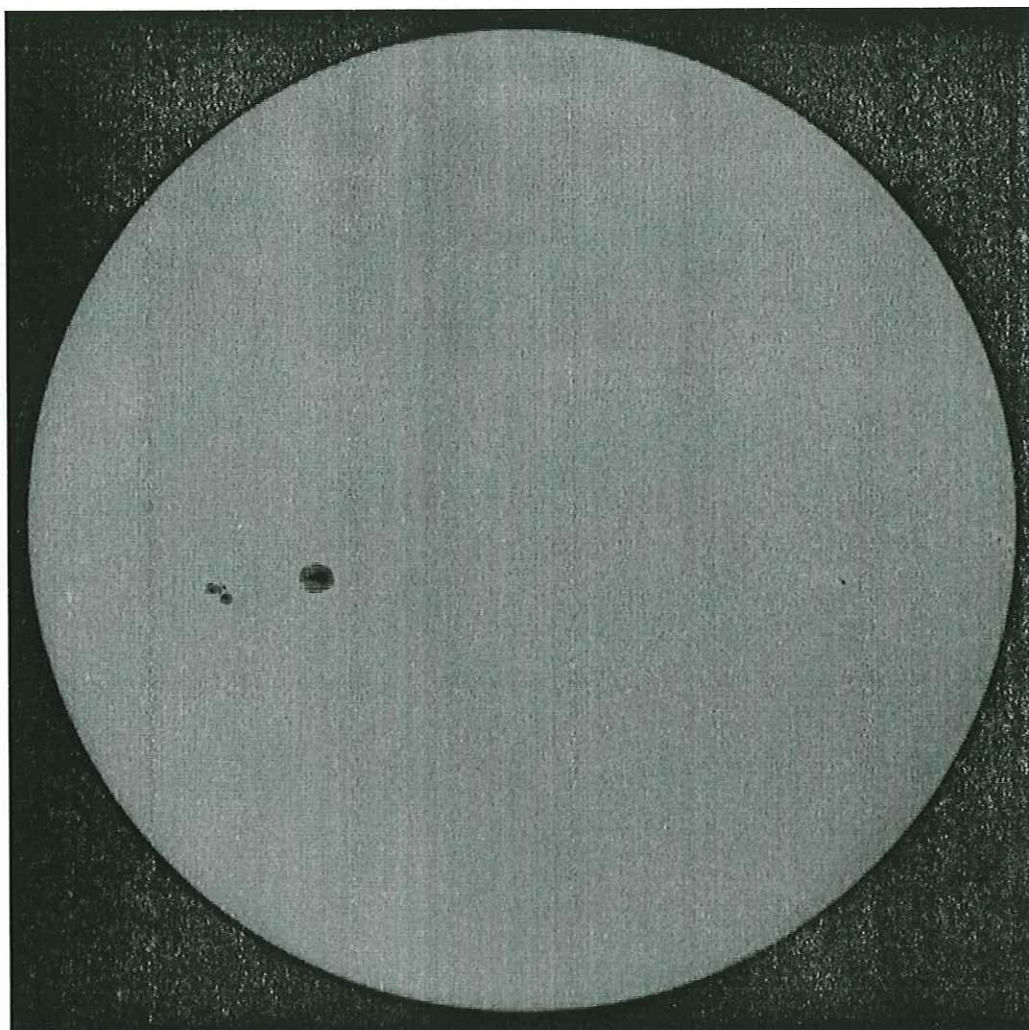
Label the following on your sunspot drawing:

- Umbra
- Penumbra
- Facula
- Light bridge (if present)
- Penumbra fibril (if visible)
- Show *approximate* direction of Solar North with an arrow

Answer the Following:

- Is granulation visible? Yes: ☒ No: ☐
- Is penumbral grain visible? Yes: ☒ No: ☐
- Does the drawing show the Wilson effect? Yes: ☐ No: ☒





Cloudy
Today

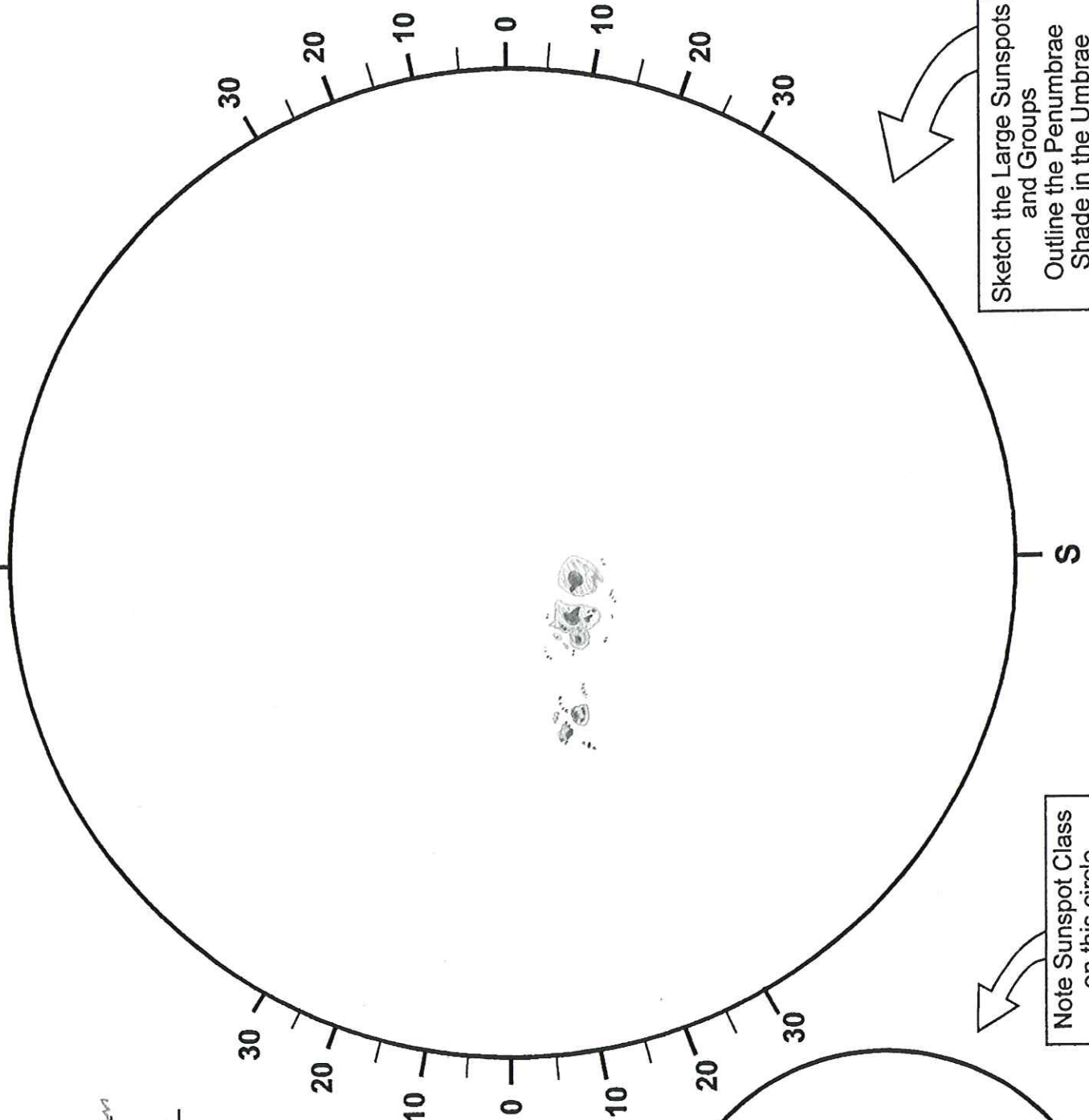
SOLAR DISK DRAWING

Observer: Mike Lotter
 Location: Boulder, CO ^{MST}
 Date/Time 3/11/04 10:56A (UT)
 Sky: clear
 Seeing Good Clouds Clear Wind S
 Telescope Bressler Type Newtonian
 Aperture Used 8"
 Focal Length 218 Eyepiece 19mm
 Filter Barlow

Observations:
 Director Projected (circle one)

Total Sunspot Count:
 (N=north of solar equator, S=south)
 Groups: N 0 + S 4 = 4
 Spots: N 0 + S 59 = 59

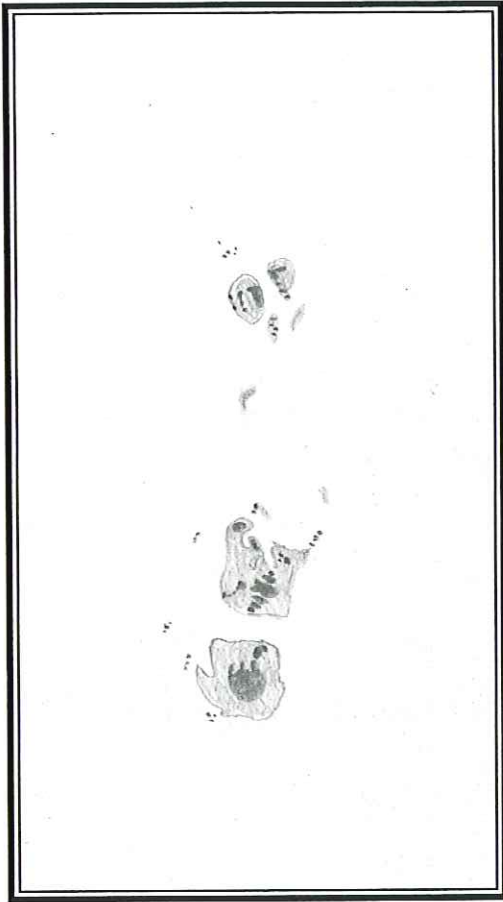
Wolf Sunspot Number (R):
 $R = 10G + S = 99$



Note Sunspot Class on this circle

Sunspot Drawing

Observer Mike Hottel Location: Boulder, CO
 Universal date/time: 3/11/04 11:12 AM Telescope effective aperture: 8"
 Sky quality: Excellent Telescope focal length: f/8
 (Excellent, good, fair, poor) Eyepiece focal length: 10 mm
 Seeing in arc seconds: 1.0 Magnification: 162x
 (smallest detail seen where a photospheric granule is 1.5-2 arc seconds) Filter type: Baader
 McIntosh Sunspot Classification: Fki

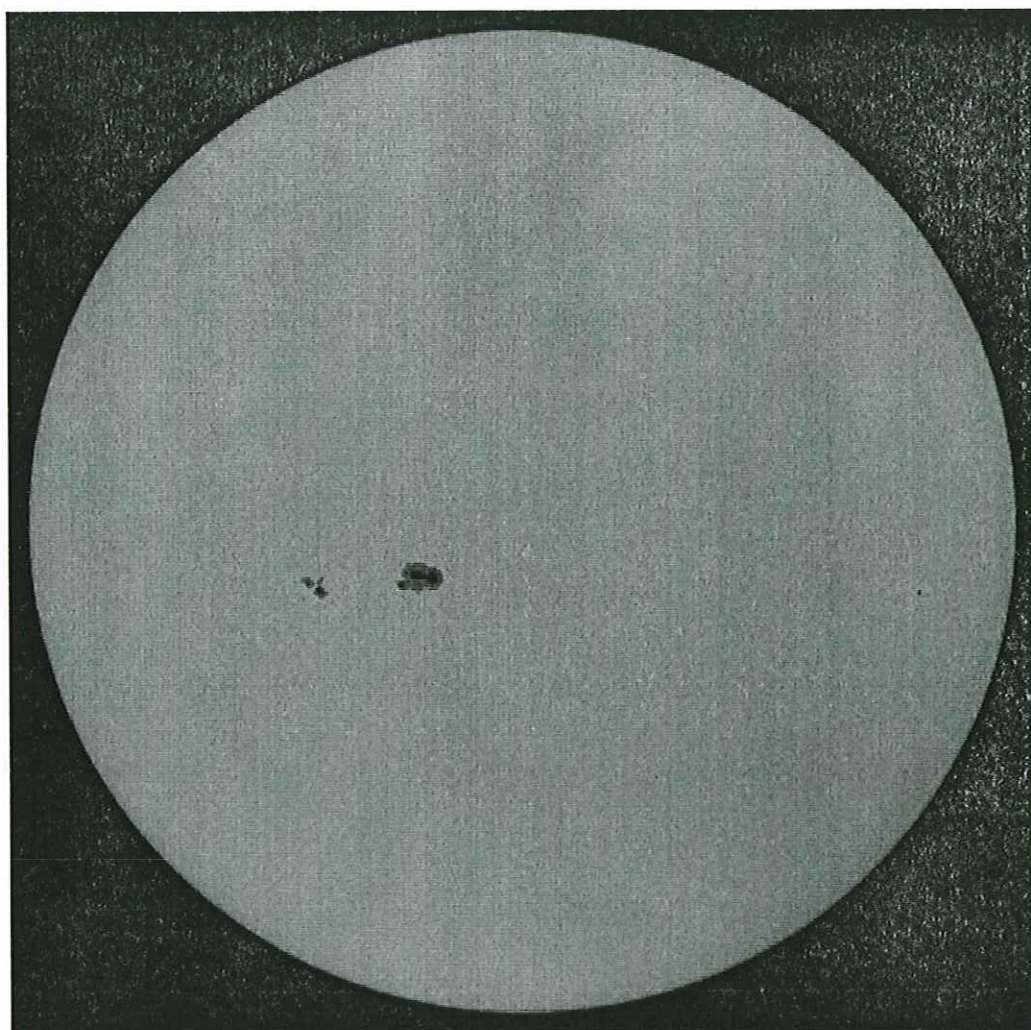


Label the following on your sunspot drawing:

- Umbra
- Penumbra
- Facula
- Light bridge (if present)
- Penumbra fibril (if visible)
- Show *approximate* direction of Solar North with an arrow

Answer the Following:

- Is granulation visible? Yes: ☒ No: ☐
- Is penumbral grain visible? Yes: ☒ No: ☐
- Does the drawing show the Wilson effect? Yes: ☐ No: ☒



SOLAR DISK DRAWING

Observer: Mike Hovles
 Location: Boulder, CO MST
 Date/Time: 3/12/04 11:46A (UT)
 Sky: _____
 Seeing Great Clouds Clear Wind Calm
 Telescope Reflector Type Newtonian
 Aperture Used 8"
 Focal Length 218 Eyepiece 10 mm
 Filter Reader

Observations:

Direct or Projected (circle one)

Total Sunspot Count:

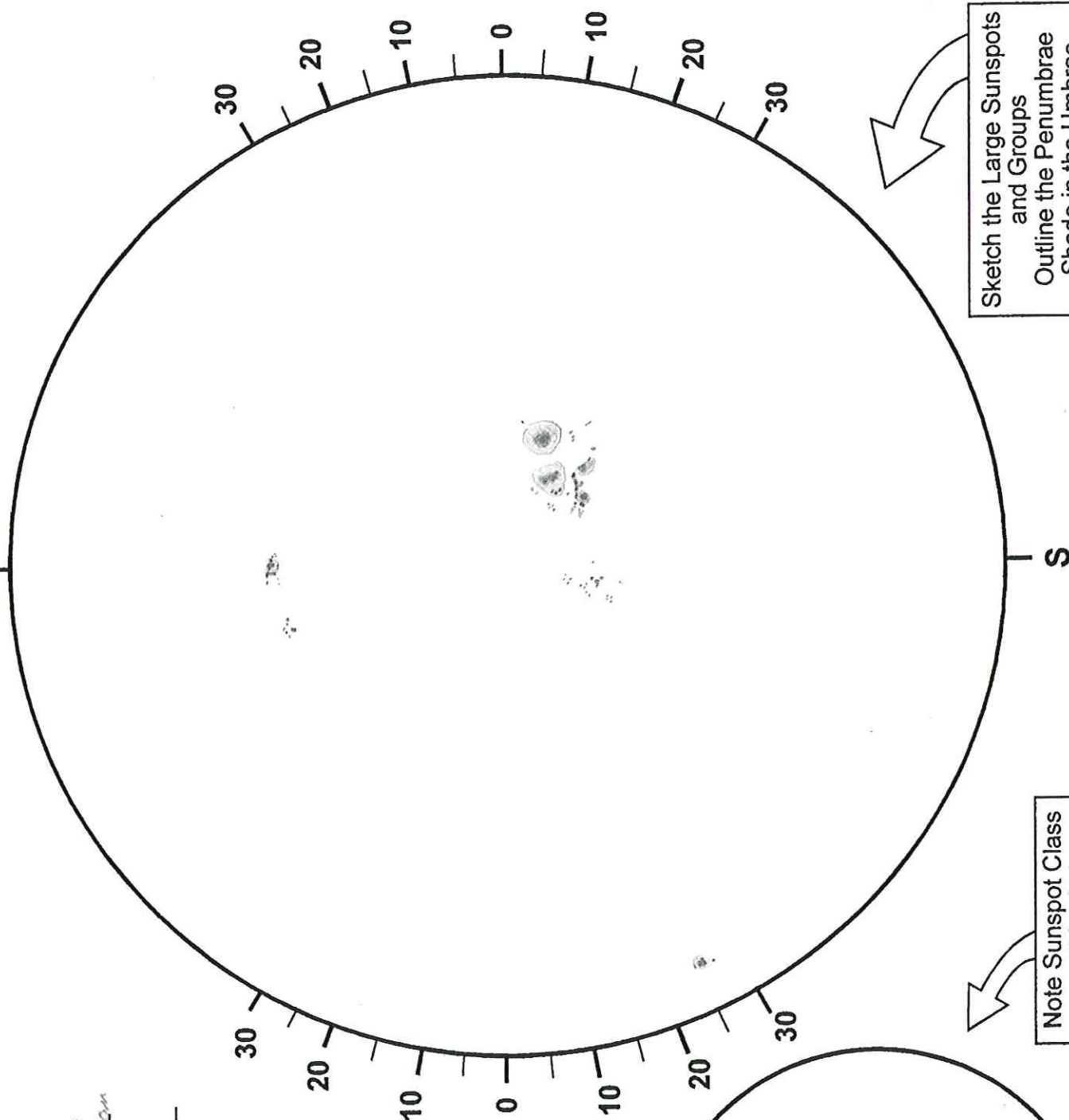
(N=north of solar equator, S=south)

Groups: N 3 + S 7 = 10

Spots: N 23 + S 64 = 87

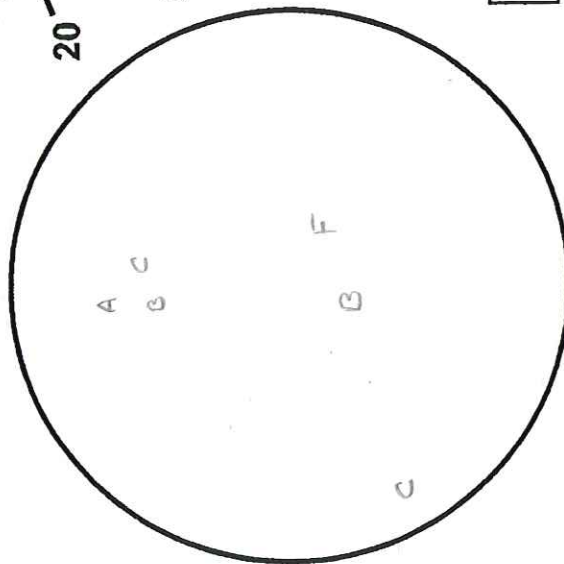
Wolf Sunspot Number (R):

$R = 10G + S = 187$



Sketch the Large Sunspots and Groups
 Outline the Penumbrae
 Shade in the Umbrae

Note Sunspot Class on this circle



Sunspot Drawing

Observer: Mike Hatcher Location: Boulder, CO
 Universal date/time: 3/12/04 11:57A Telescope effective aperture: 8"
 Sky quality: Excellent Telescope focal length: 614
 (Excellent, good, fair, poor) Eyepiece focal length: 10mm
 Seeing in arc seconds: 1.0 Magnification: 162x
 (smallest detail seen where a photospheric granule is 1.5-2 arc seconds) Filter type: Bader
 McIntosh Sunspot Classification: F11

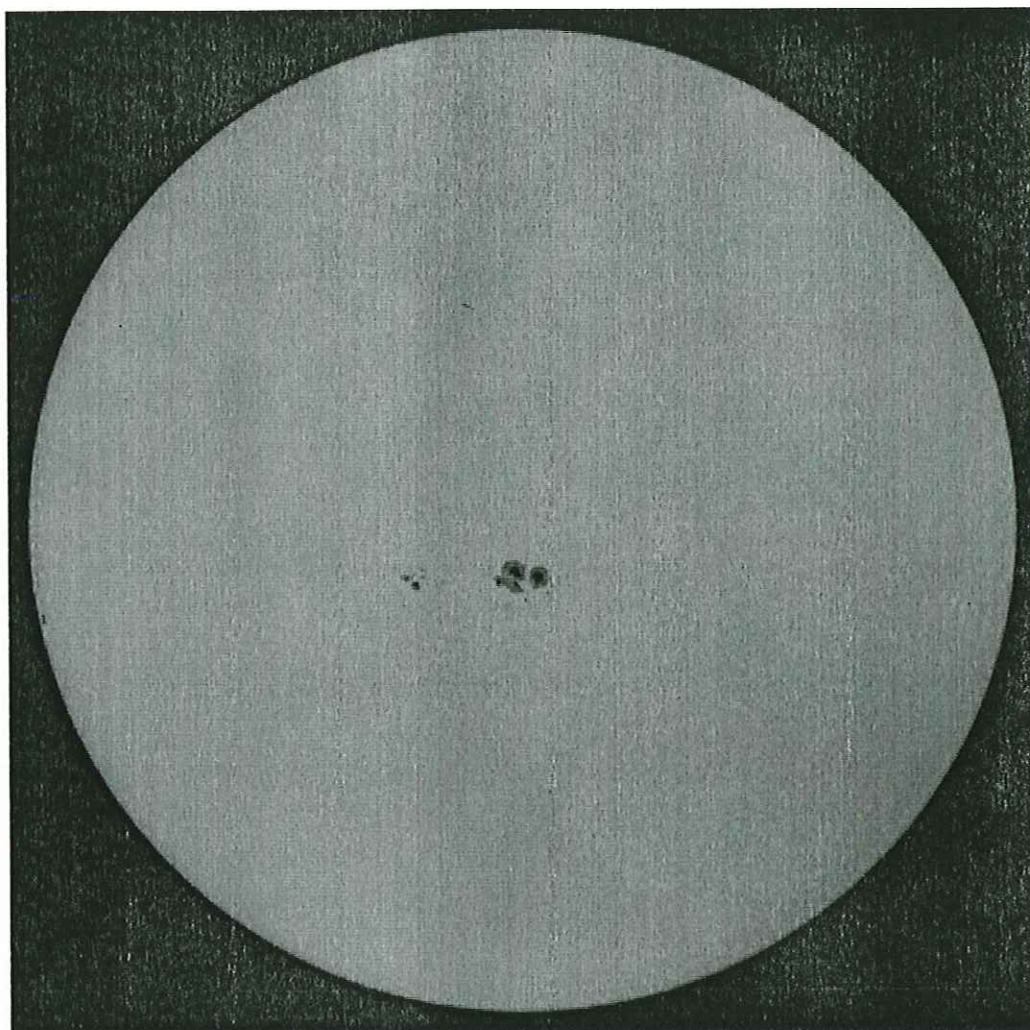


Label the following on your sunspot drawing:

- Umbra
- Penumbra
- Facula
- Light bridge (if present)
- Penumbra fibril (if visible)
- Show *approximate* direction of Solar North with an arrow

Answer the Following:

- Is granulation visible? Yes: ☒ No: ☐
- Is penumbral grain visible? Yes: ☒ No: ☐
- Does the drawing show the Wilson effect? Yes: ☒ No: ☐ on gap at edge of Sun



SOLAR DISK DRAWING

Observer: Mike Notter
 Location: Burnsville, MN
 Date/Time: 3/13/04 10:14A (UT)
 Sky: High Light
 Seeing: OK Clouds: Thin Wind: 0
 Telescope: Reflector Type: Newtonian
 Aperture Used: 8"
 Focal Length: 818 Eyepiece: 19mm
 Filter: Baader

Observations:
Direct or Projected (circle one)

Total Sunspot Count:

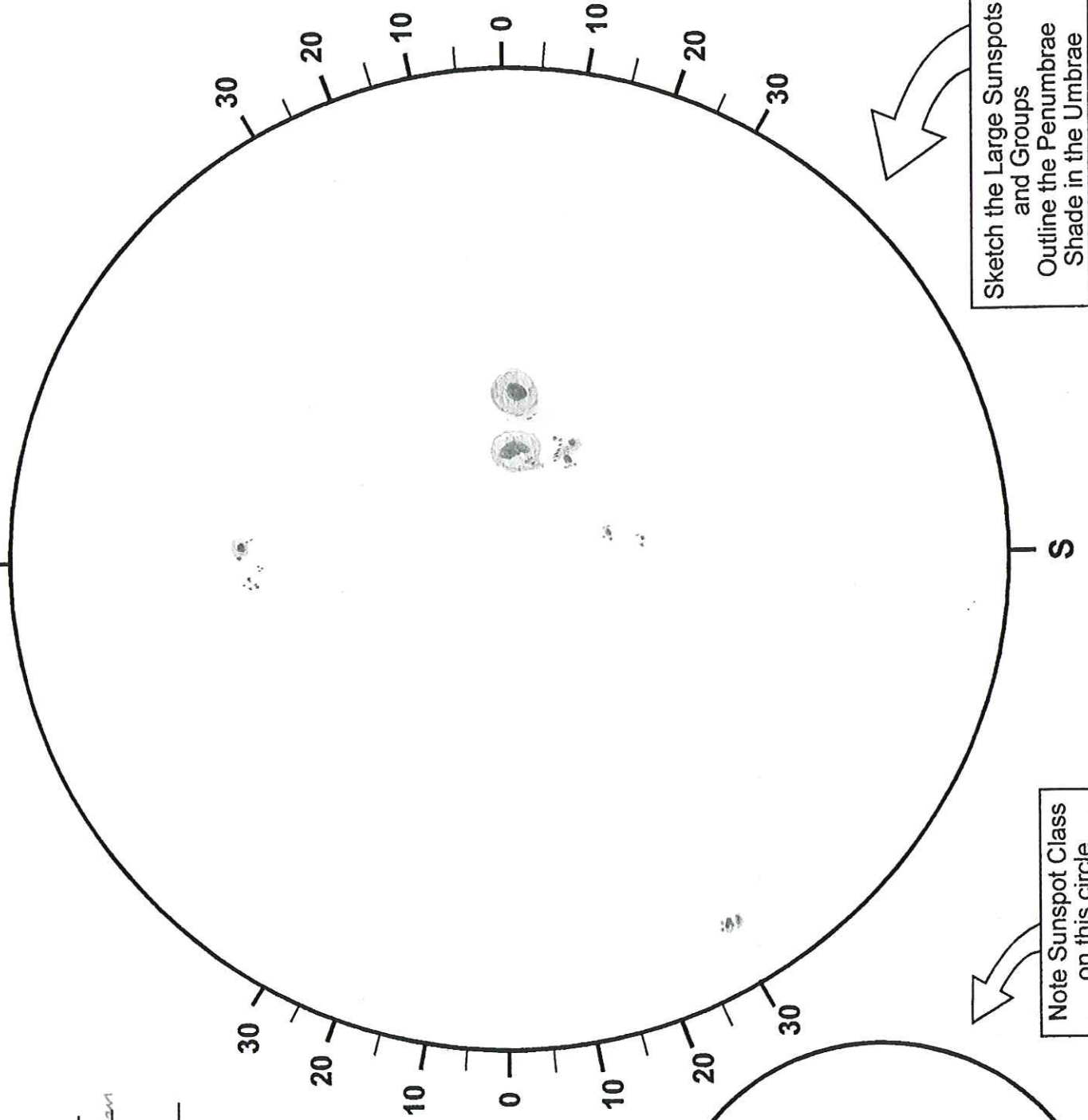
(N=north of solar equator, S=south)

Groups: N 2 + S 4 = 6

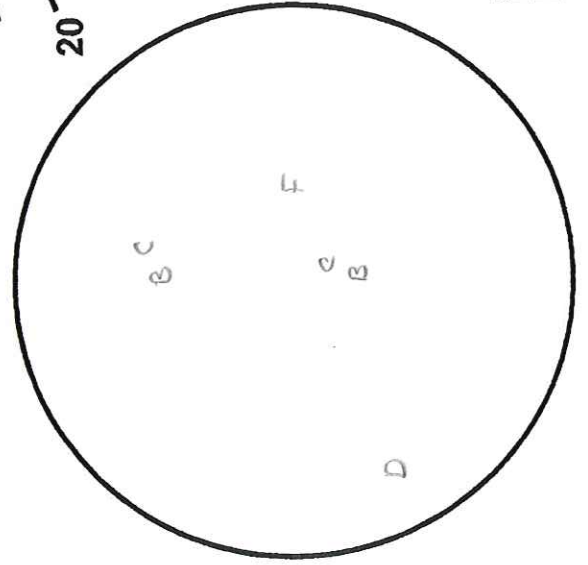
Spots: N 13 + S 35 = 48

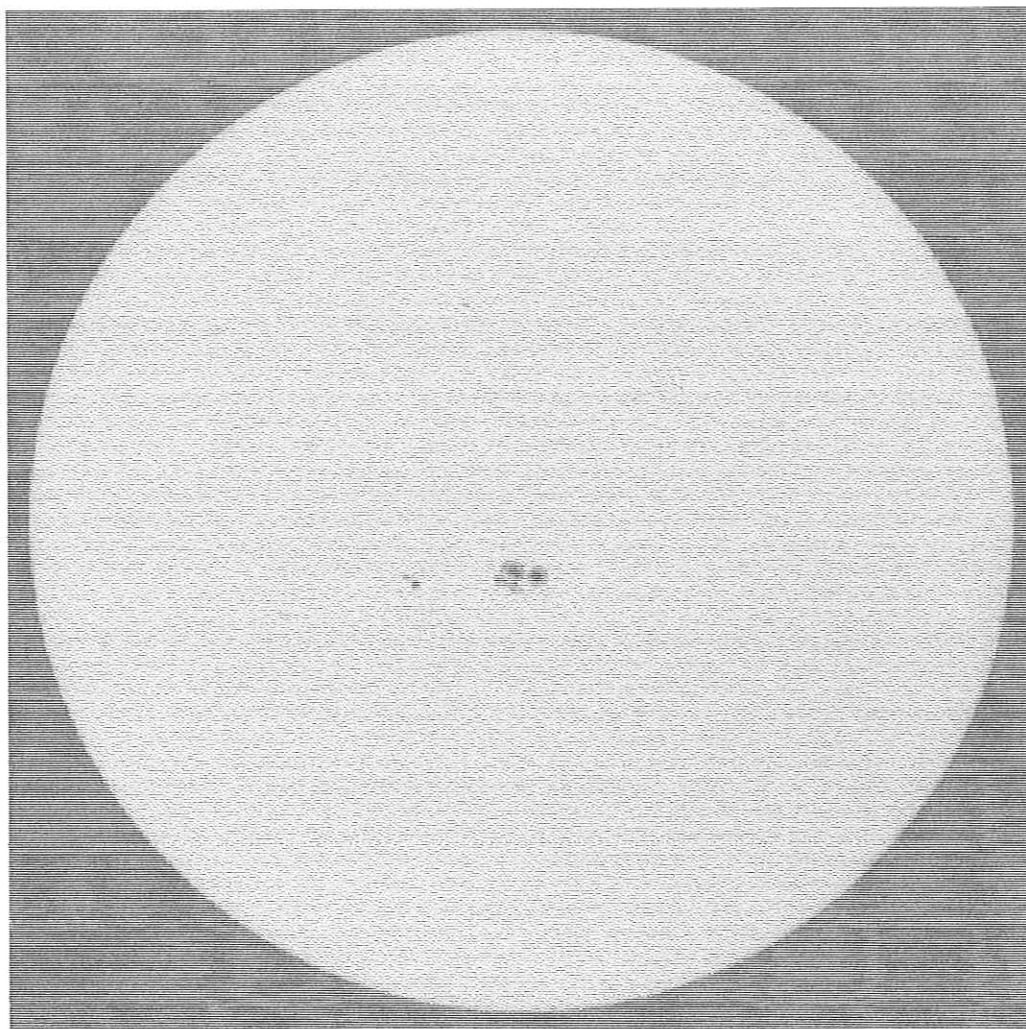
Wolf Sunspot Number (R):

$R = 10G + S = 108$



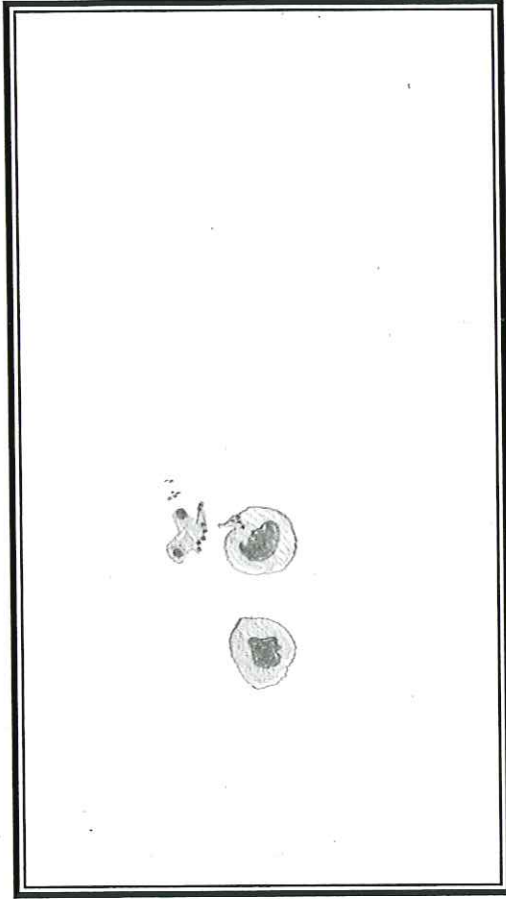
Note Sunspot Class on this circle





Sunspot Drawing

Observer Mike Hottel Location: Bonfield, CO
 Universal date/time: 3/13/04 10:21A Telescope effective aperture: 8"
 Sky quality: Poor - Fair Telescope focal length: 218
 (Excellent, good, fair, poor) Eyepiece focal length: 10mm
 Seeing in arc seconds: 3+ Magnification: 162x
 (smallest detail seen where a photospheric granule is 1.5-2 arc seconds) Filter type: Baader
 McIntosh Sunspot Classification: Fhi



Label the following on your sunspot drawing:

- Umbra
- Penumbra
- Facula
- Light bridge (if present)
- Penumbra fibril (if visible)
- Show *approximate* direction of Solar North with an arrow

Answer the Following:

- Is granulation visible? Yes: No:
- Is penumbra grain visible? Yes: No:
- Does the drawing show the Wilson effect? Yes: No:

SOLAR DISK DRAWING

Observer: Mike Notter
 Location: Brownfield, CO MST
 Date/Time 3/14/04 10:14A (UT)
 Sky: _____
 Seeing Good Clouds Clear Wind Calm
 Telescope Reflector Type Newtonian
 Aperture Used 8"
 Focal Length 218 Eyepiece 19mm
 Filter Bandpass
 Observations: _____
 Direct or Projected (circle one)

Total Sunspot Count:

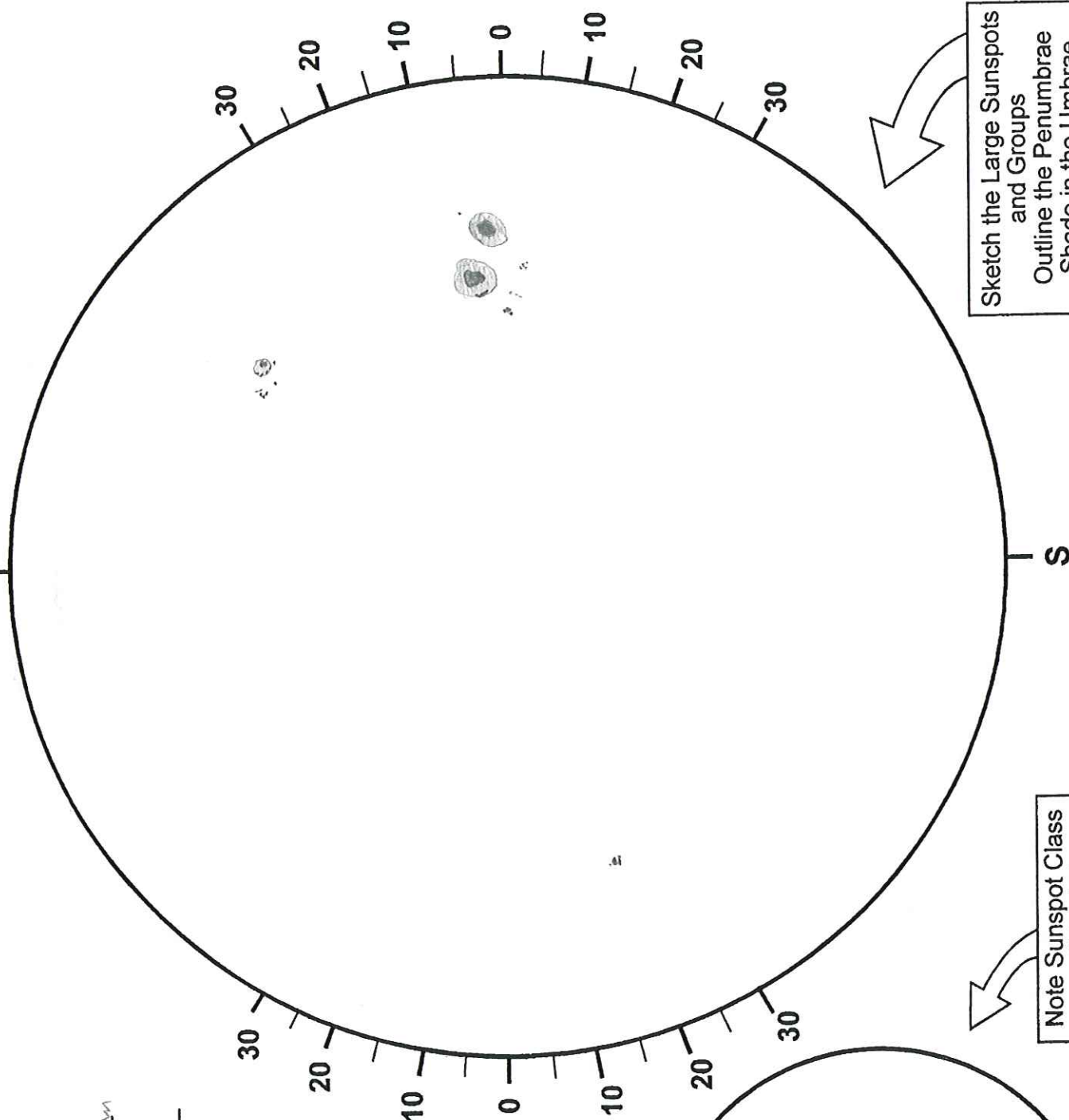
(N=north of solar equator, S=south)

Groups: N 3 + S 2 = 5

Spots: N 15 + S 14 = 29

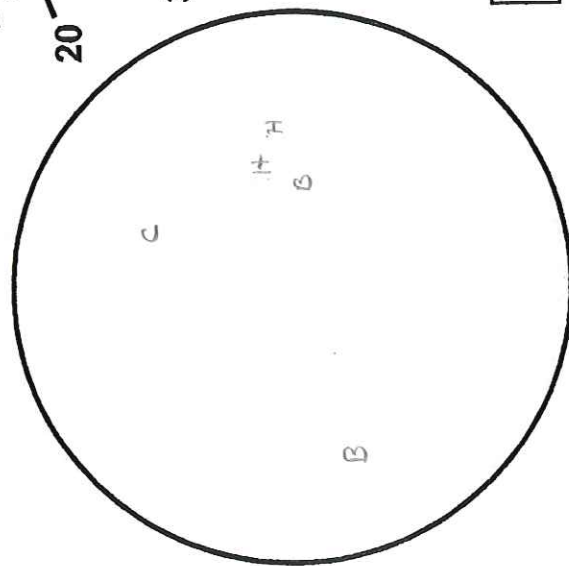
Wolf Sunspot Number (R):

$R = 10G + S = 79$



Sketch the Large Sunspots and Groups
 Outline the Penumbrae
 Shade in the Umbrae

Note Sunspot Class on this circle



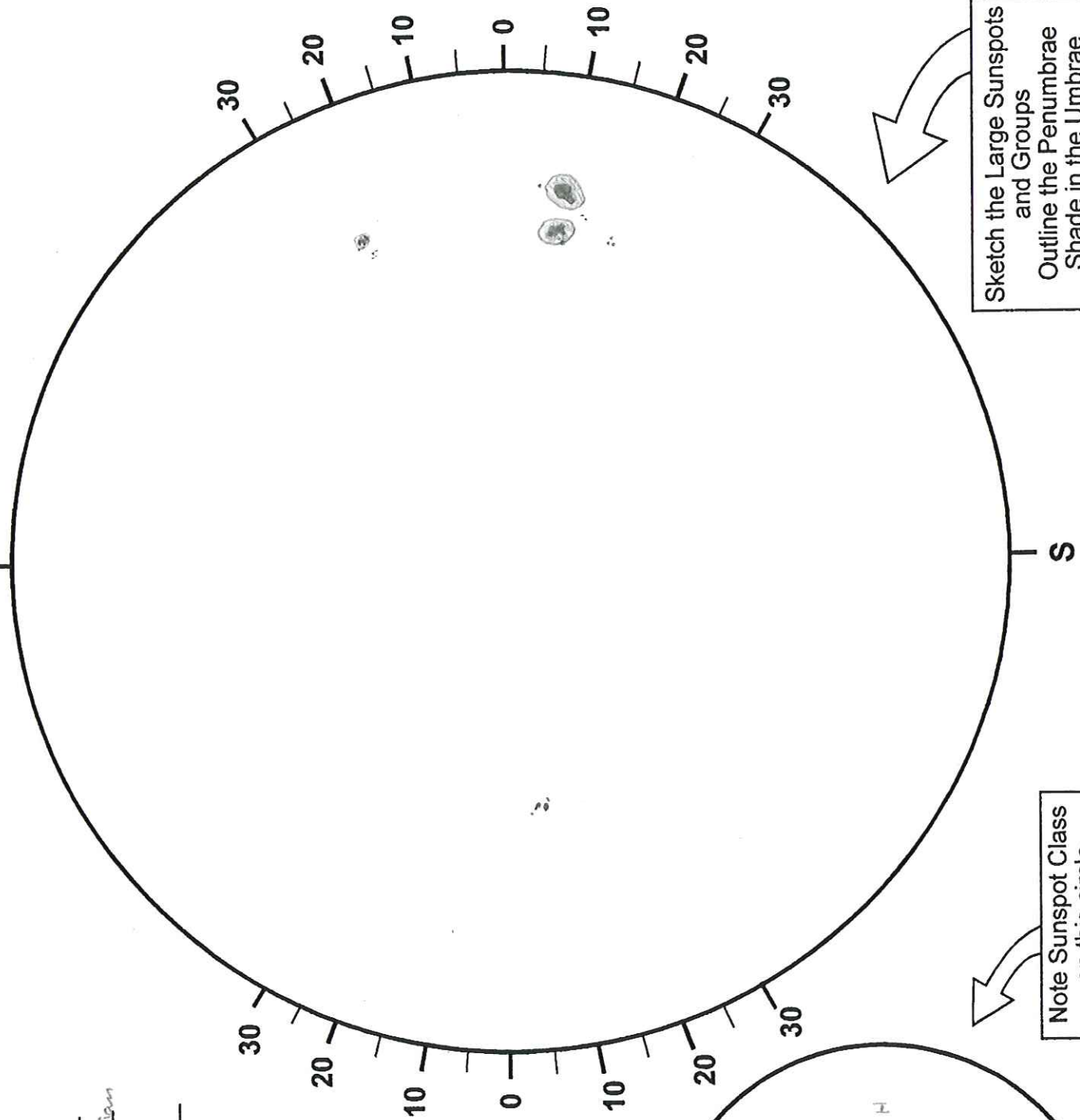
SOLAR DISK DRAWING

Observer: Mike Hatlee
 Location: Boulder, CO MST
 Date/Time: 3/15/04 11:23 L (UT)
 Sky: Light SW
 Seeing 0.12 Clouds P/C Wind SW
 Telescope Reflector Type Newtonian
 Aperture Used 8"
 Focal Length 8' 8" Eyepiece 19 mm
 Filter Baader

Observations:
 Director Projected (circle one)

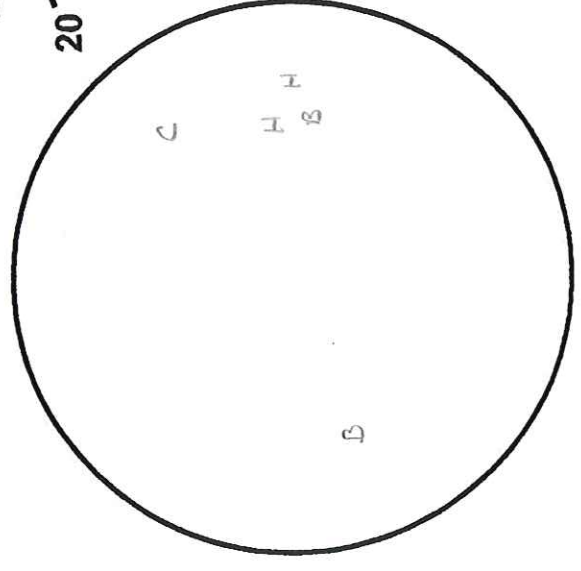
Total Sunspot Count:
 (N=north of solar equator, S=south)
 Groups: N 1 + S 4 = 50
 Spots: N 9 + S 14 = 23

Wolf Sunspot Number (R):
 $R = 10G + S = \underline{73}$



Sketch the Large Sunspots and Groups
 Outline the Penumbrae
 Shade in the Umbrae

Note Sunspot Class on this circle



SpaceWeather.com

Science news and information about the Sun-Earth environment.

850883

SPACE WEATHER

Current Conditions



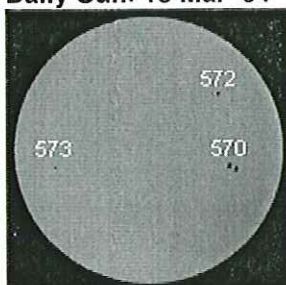
Solar Wind

speed: 453.1 km/s
density: 1.1 protons/cm³
[explanation](#) | [more data](#)
Updated: Today at 1454 UT

X-ray Solar Flares

6-hr max: B4 1135 UT Mar15
24-hr: B4 1135 UT Mar15
[explanation](#) | [more data](#)
Updated: Today at 1455 UT

Daily Sun: 15 Mar '04



Disintegrating sunspot 570 poses a small threat for M-class solar flares. Image credit: SOHO/MDI

The Far Side of the Sun



This holographic image reveals a developing sunspot group on the far side of the Sun. Image credit: SOHO/MDI

Sunspot Number: 61

[What is the sunspot number?](#)
Updated: 14 Mar 2004

Interplanetary Mag. Field

B_{total}: 5.3 nT

B_z: 2.7 nT north

[explanation](#) | [more data](#)

Updated: Today at 1457 UT

Coronal Holes:

What's Up in Space -- 15 Mar 2004

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Would you like a call when auroras appear over your home town? Sign up for [Spaceweather PHONE](#).



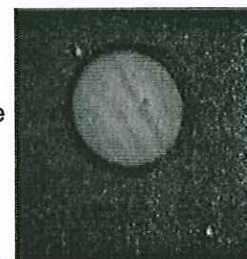
AURORA OUTLOOK: Earth is leaving behind a solar wind stream that sparked auroras as far south as Minnesota and Wisconsin on March 9th, 10th and 11th. The probability for more auroras this week is low. [\[gallery\]](#)



Above: Auroras over Toijala, Finland, on March 9th. Photo credit: [Tom Eklund](#).

JUPITER: Earth and Jupiter are having a close encounter this month. Jupiter is only 400 million miles away, which means it's big and bright. Look for it rising in the eastern sky after sunset. Only Venus, the moon and the sun itself are brighter. [\[sky map\]](#)

To the naked eye, Jupiter looks star-like, simply a bright point of light. Through a telescope, it looks like a full-fledged alien world. Even a small telescope will reveal the planet's rust-colored cloudbelts and its four biggest satellites: Io, Europe, Ganymede and Callisto.



Above: On March 13th, Andrew Chatman of Pittsford, NY, took this picture of Jupiter using his 8-inch telescope. The dark spot near the middle of the planet is the shadow of Ganymede. "This is my first photograph of Jupiter," says Chatman. Not bad for a beginner.

SOLAR DISK DRAWING

Observer: Mike Horton
 Location: Boulder, CO MST
 Date/Time 3/16/04 11:06:4 (UT)
 Sky: High Light
 Seeing Good Clouds Thin Wind SW
 Telescope Reflector Type Newtonian
 Aperture Used 8"
 Focal Length f/8 Eyepiece 19 mm
 Filter Barlow

Observations:
Direct or Projected (circle one)

Total Sunspot Count:

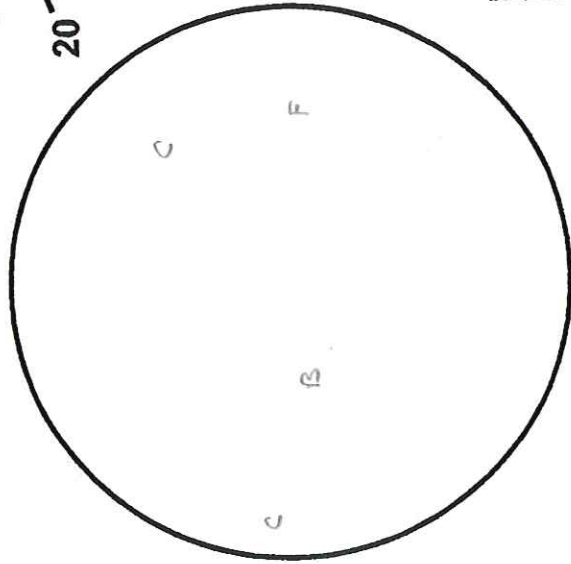
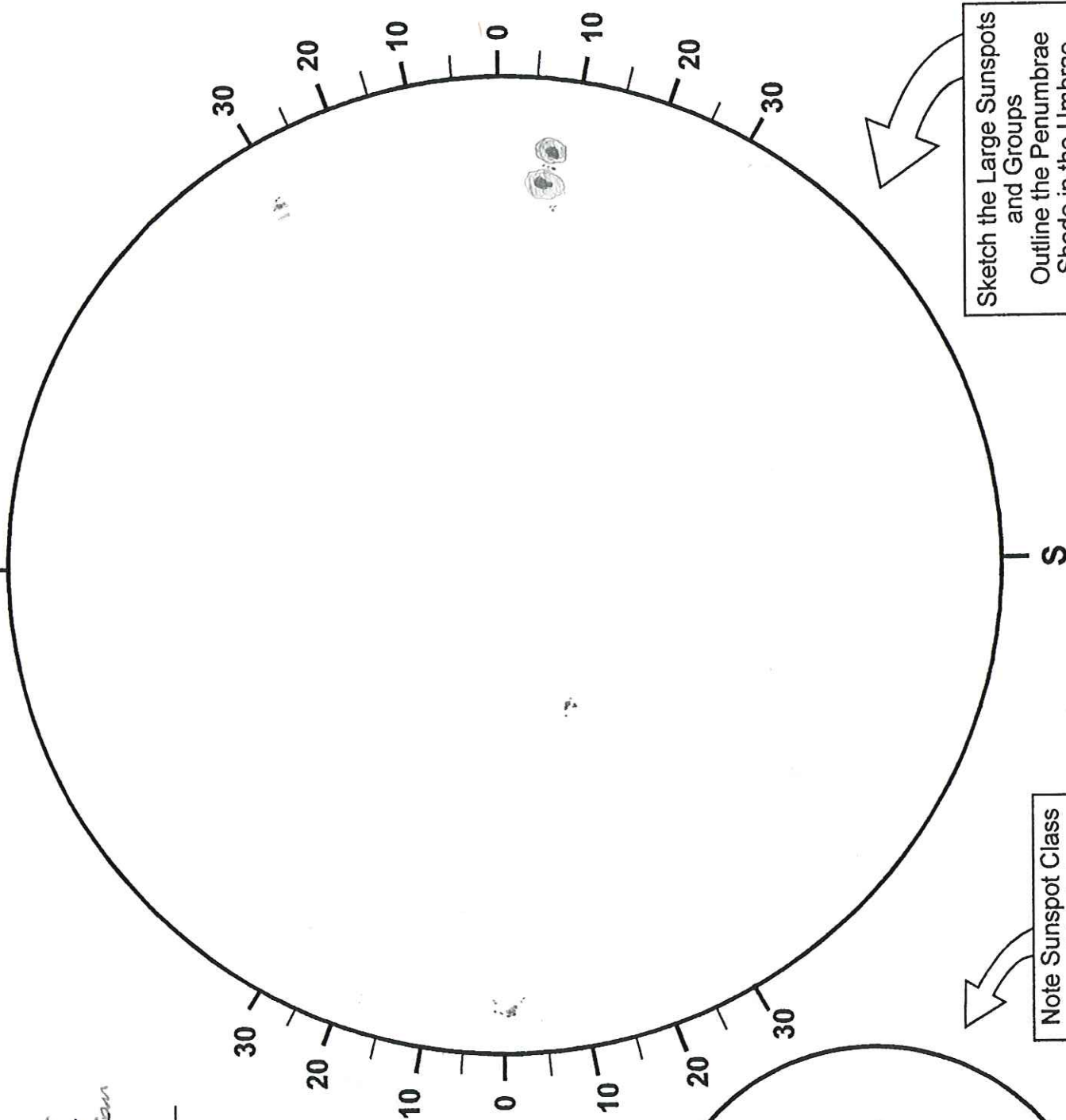
(N=north of solar equator, S=south)

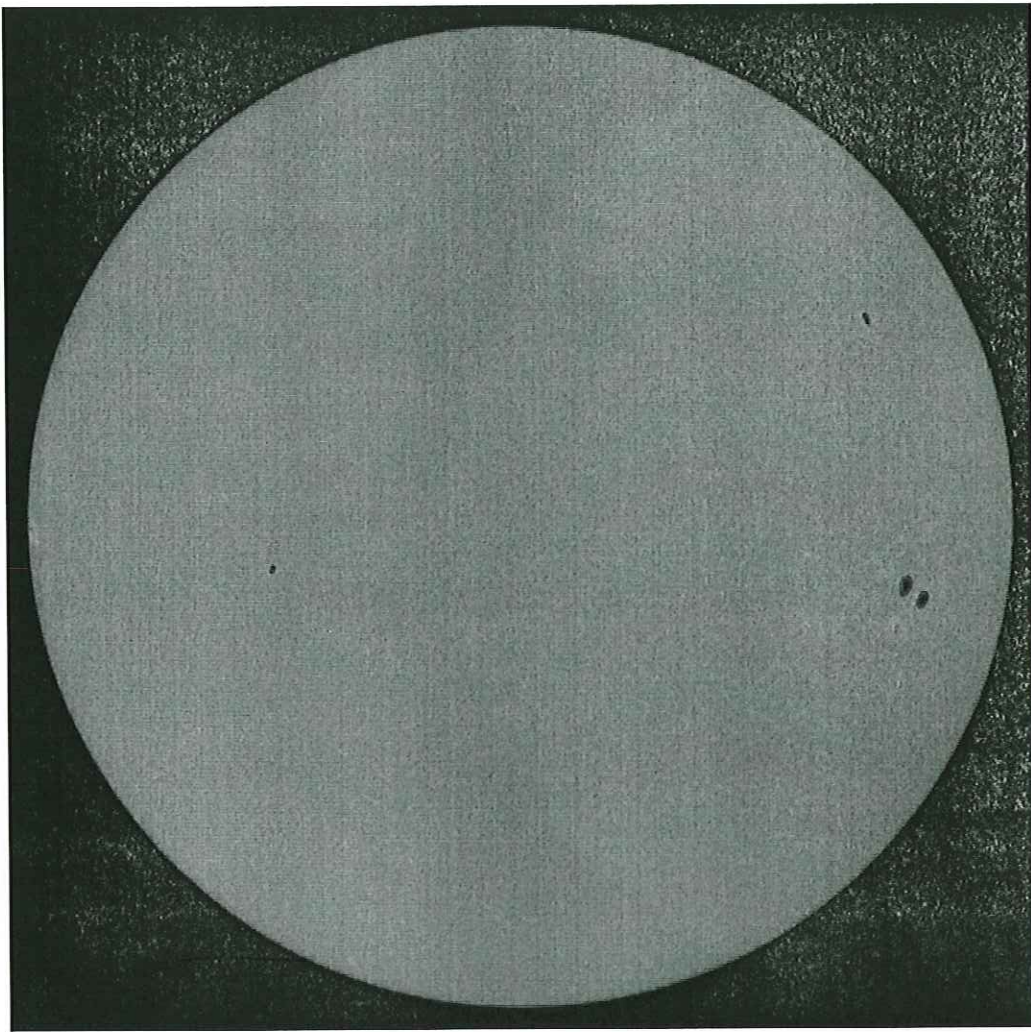
Groups: N 1 + S 3 = 4

Spots: N 8 + S 20 = 28

Wolf Sunspot Number (R):

$R = 10G + S = 68$





SOLAR DISK DRAWING

Observer: Mike Kistler
 Location: Boulder Co MST
 Date/Time 3/17/04 12:27P (UT)
 Sky: Very Strong W - NW
 Seeing Good Clouds Clear Wind W - NW
 Telescope Reflector Type Newtonian
 Aperture Used 8"
 Focal Length 618 Eyepiece 19mm
 Filter Barium
 Observations:
 Direct or Projected (circle one)

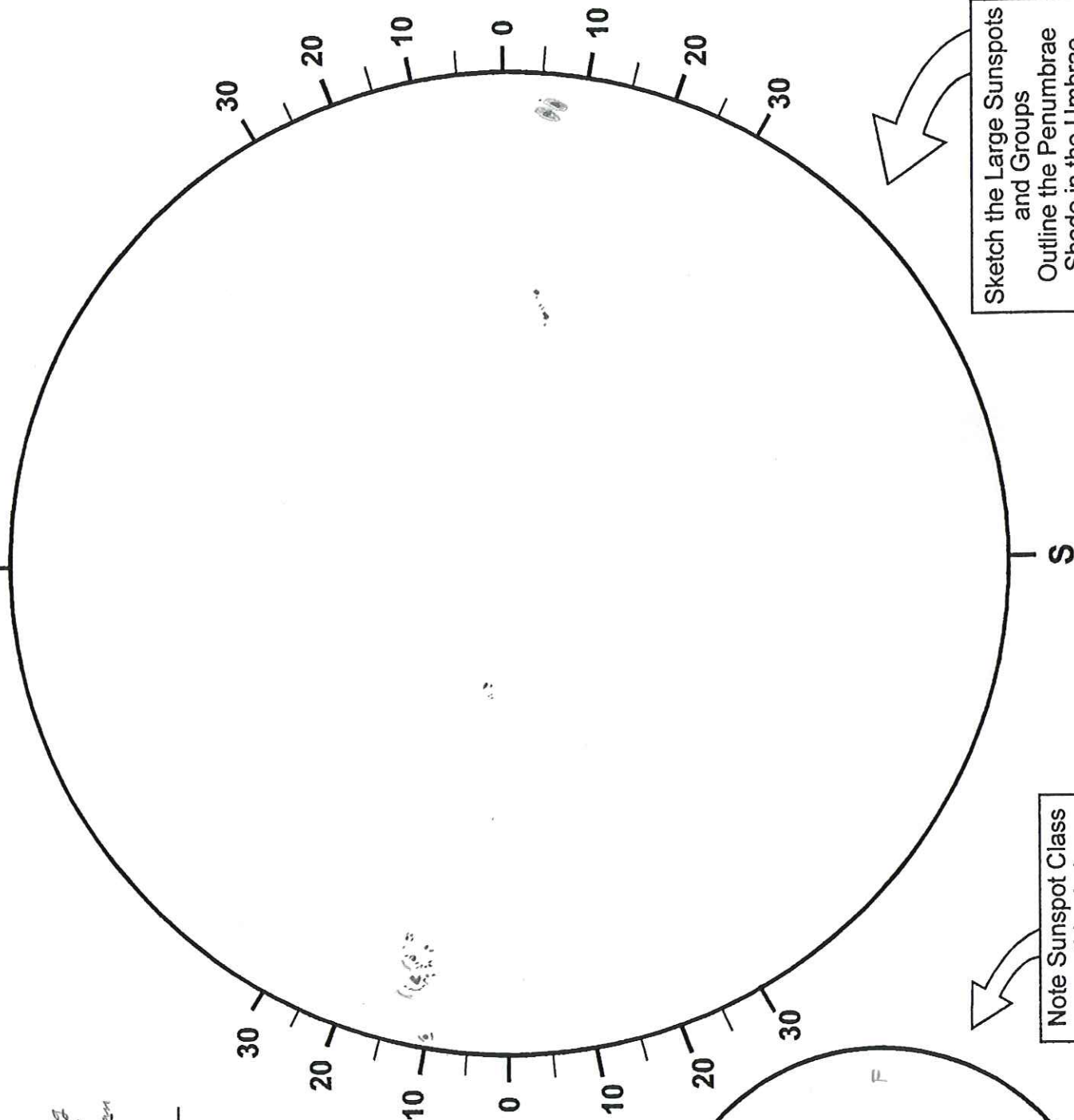
Total Sunspot Count:

(N=north of solar equator, S=south)

Groups: N 3 + S 2 = 5
 Spots: N 34 + S 10 = 44

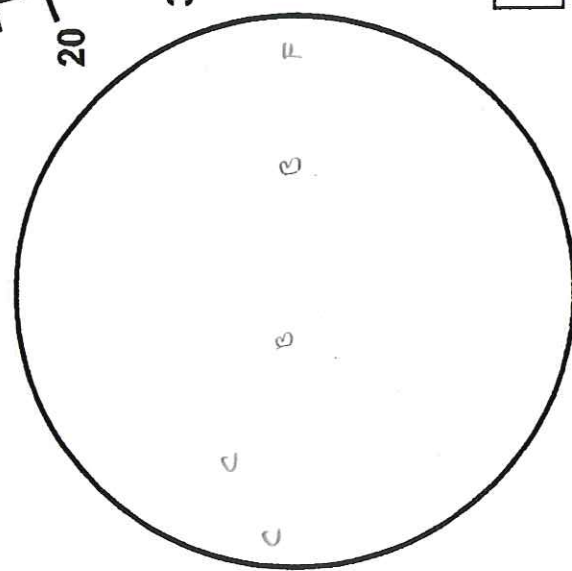
Wolf Sunspot Number (R):

$R = 10G + S = 94$



Sketch the Large Sunspots and Groups
 Outline the Penumbrae
 Shade in the Umbrae

Note Sunspot Class on this circle



SOLAR DISK DRAWING

Observer: Mike Hottel
 Location: Boulder CO MST
 Date/Time 3/18/04 11:07A (UT)
 Sky: _____
 Seeing Good Clouds Clear Wind Calm
 Telescope Reflector Type Newtonian
 Aperture Used 8"
 Focal Length 21/8 Eyepiece 19mm
 Filter Baader

Observations:
☒ Direct or Projected (circle one)

Total Sunspot Count:

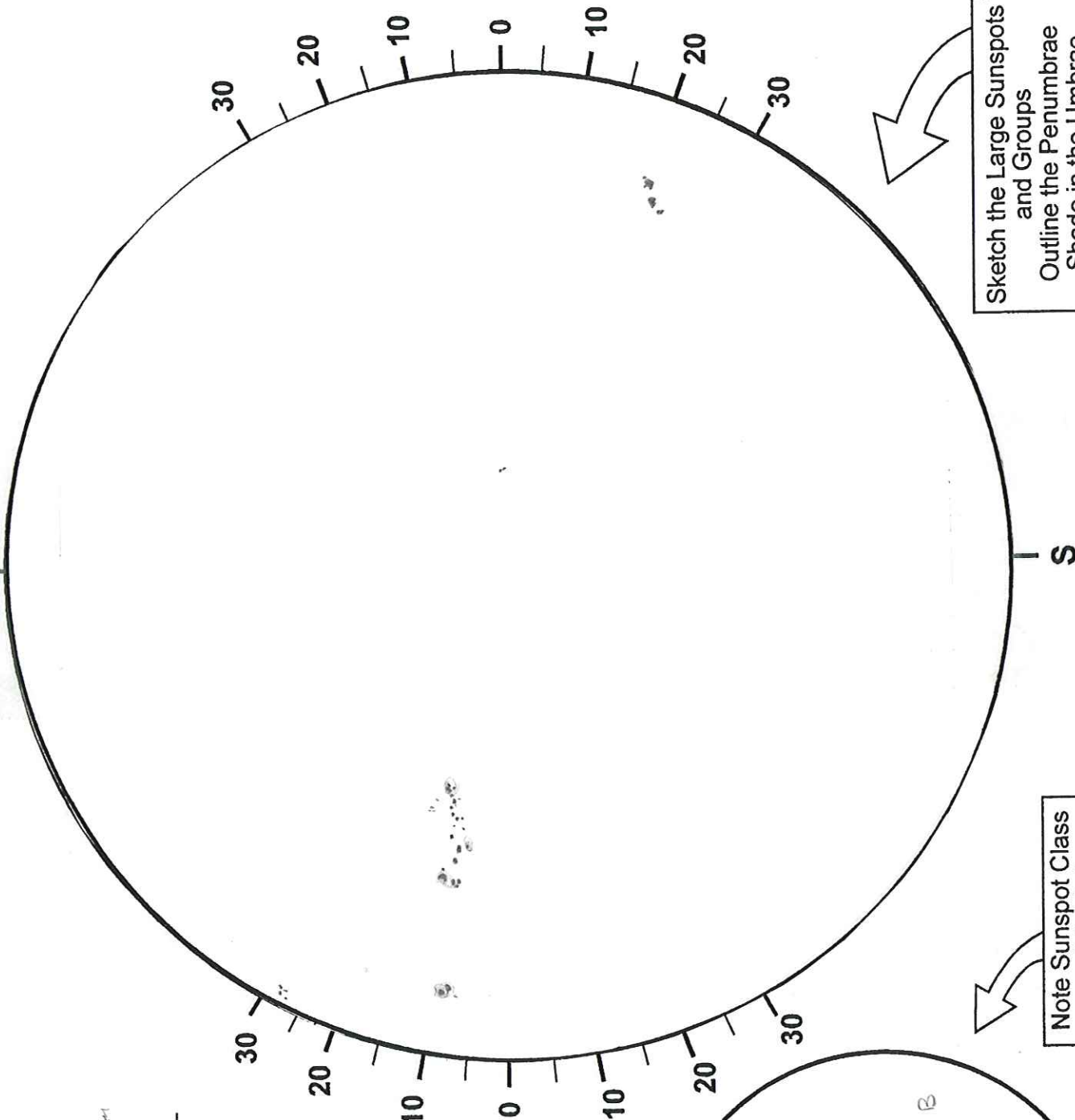
(N=north of solar equator, S=south)

Groups: N 4 + S 1 = 5

Spots: N 36 + S 7 = 42

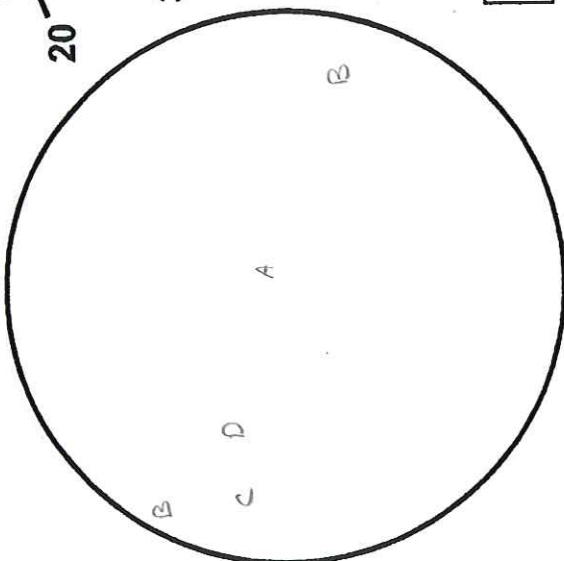
Wolf Sunspot Number (R):

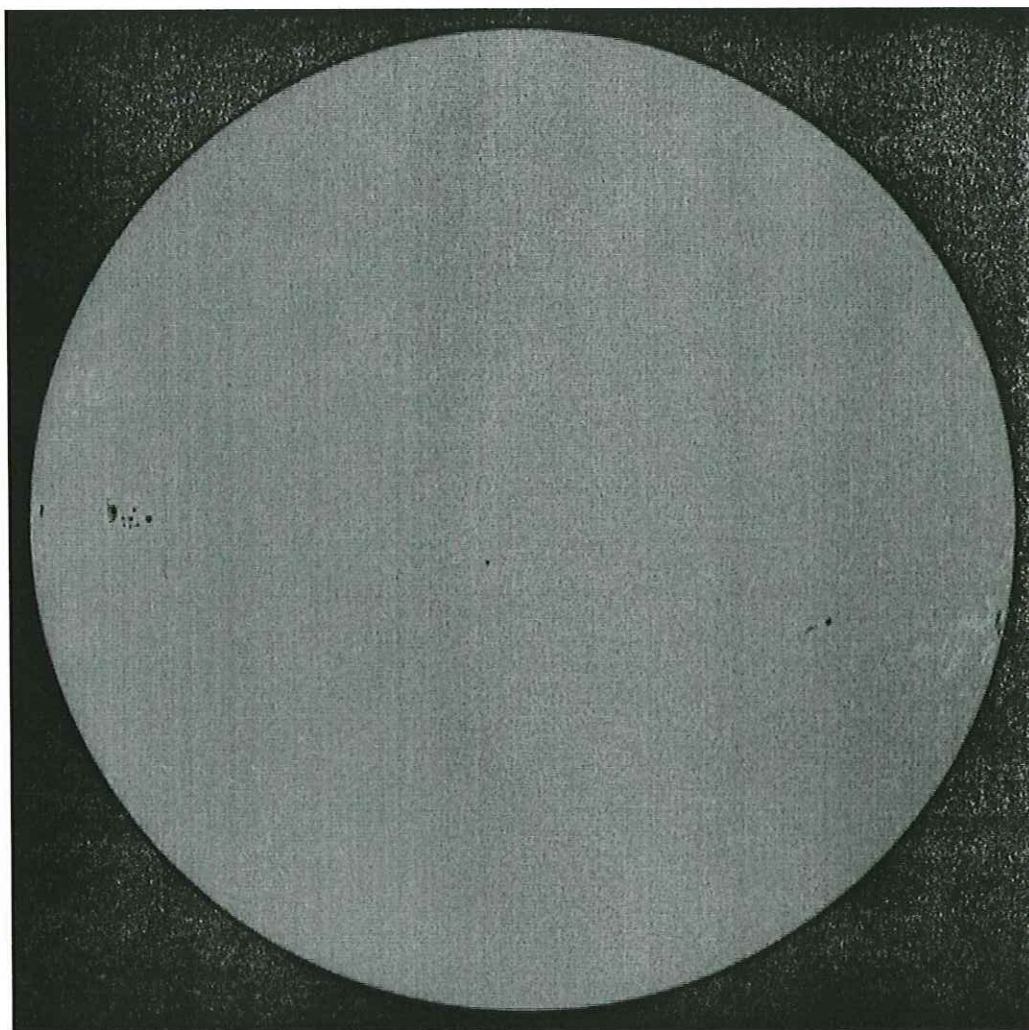
R = 10G + S = 92



Sketch the Large Sunspots and Groups
 Outline the Penumbrae
 Shade in the Umbrae

Note Sunspot Class on this circle





SOLAR DISK DRAWING

Observer: Mike Watkes

Location: Brownfield CO

Date/Time 3/19/04 7:55A (UT)

Sky:

Seeing OK Clouds High Wind Calms

Telescope 2.1x100 Type Newtonian

Aperture Used 8"

Focal Length 1/8 Eyepiece 19mm

Filter Barlow

Observations:

Direct or Projected (circle one)

Total Sunspot Count:

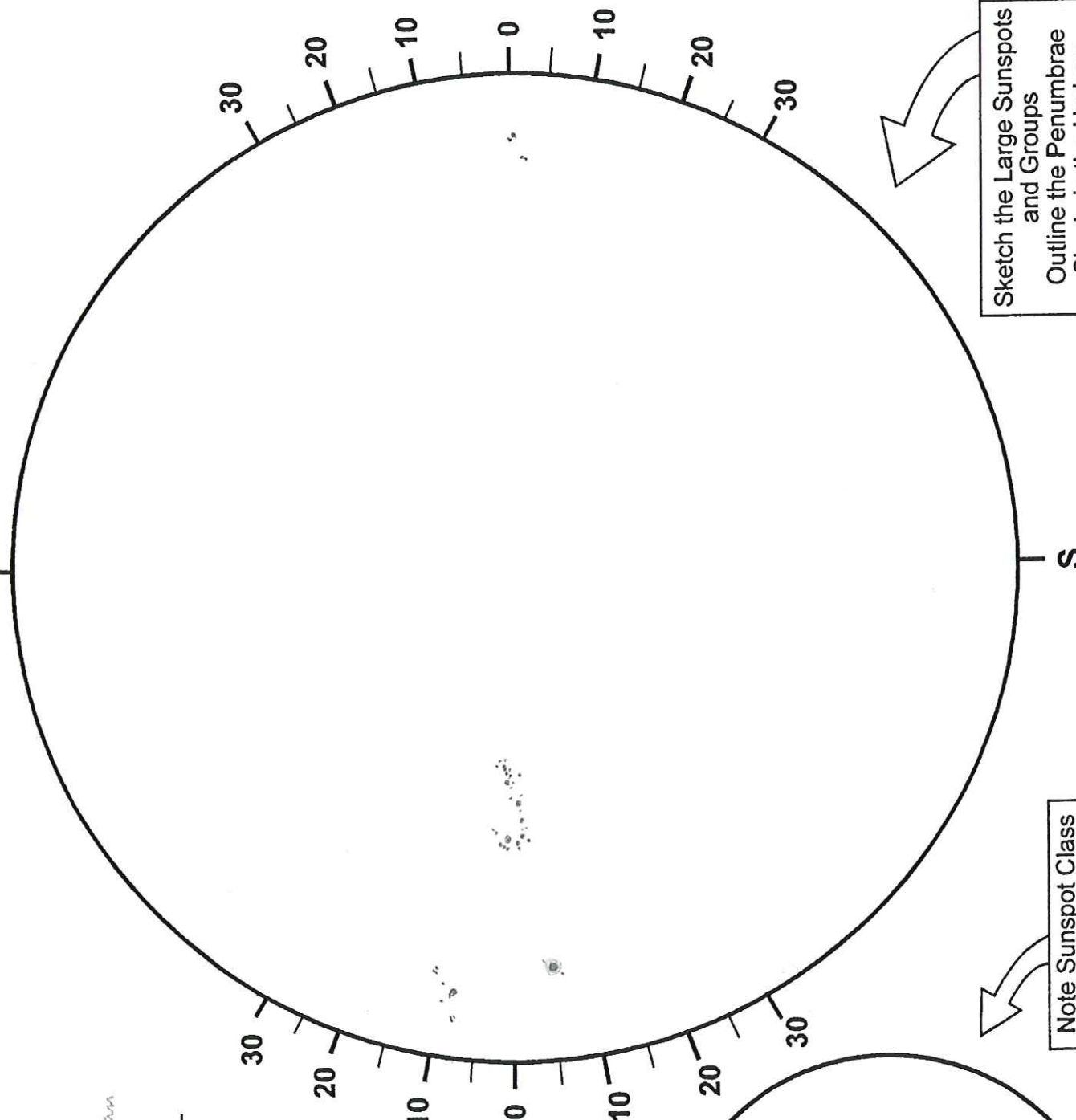
(N=north of solar equator, S=south)

Groups: N 1.5 + S 2.5 = 4

Spots: N 28 + S 19 = 47

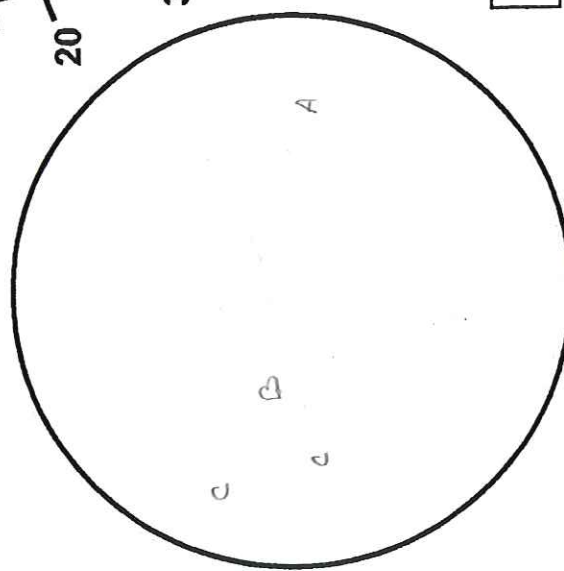
Wolf Sunspot Number (R):

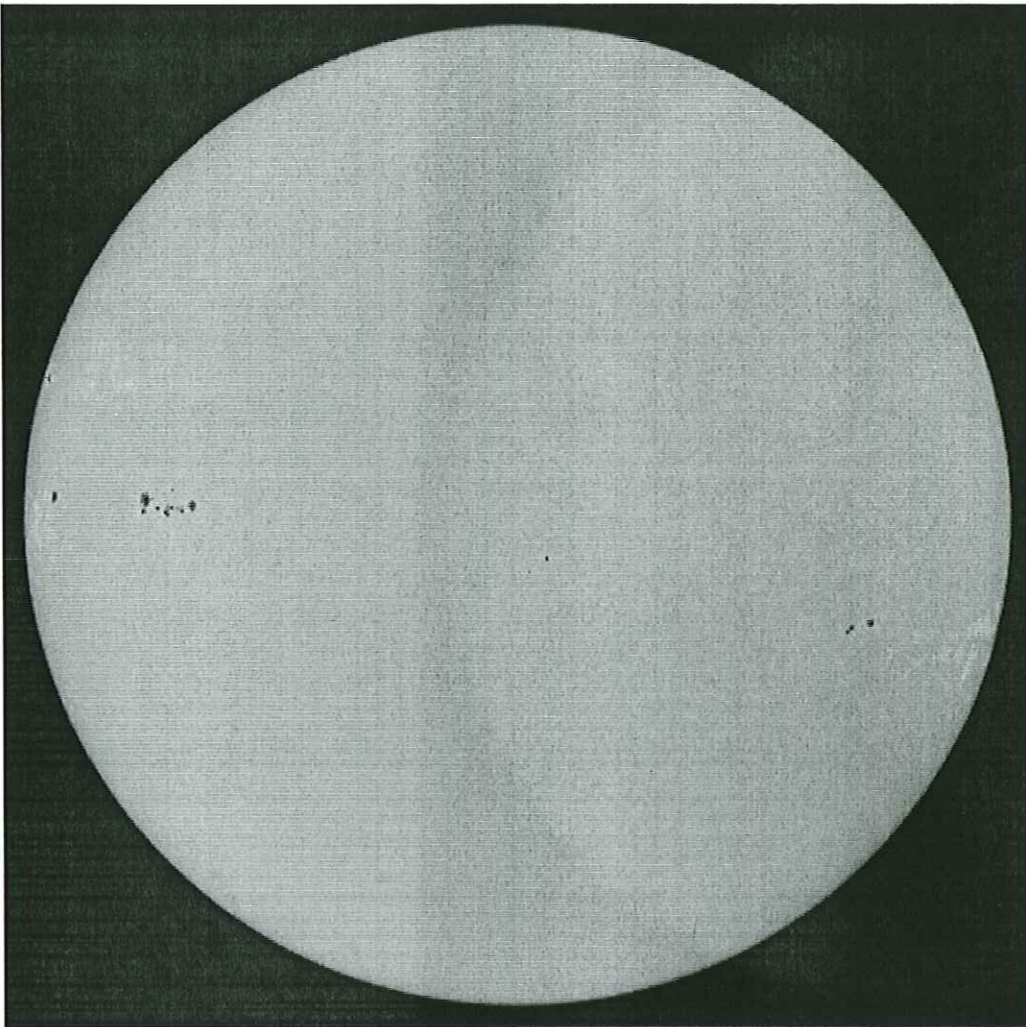
$R = 10G + S = 87$



Sketch the Large Sunspots and Groups
Outline the Penumbrae
Shade in the Umbrae

Note Sunspot Class on this circle





SOLAR DISK DRAWING

Observer: Mike Watkins
 Location: Panama Canal ¹⁰ MST
 Date/Time 3/20/04 10:02 A (UT)
 Sky: Medium
 Seeing Good Clouds Clear Wind 510
 Telescope Reflector Type Newtonian
 Aperture Used 12.5"
 Focal Length 219 Eyepiece 32/19mm
 Filter Mylar Glass

Observations:
 Direct or Projected (circle one)

Total Sunspot Count:

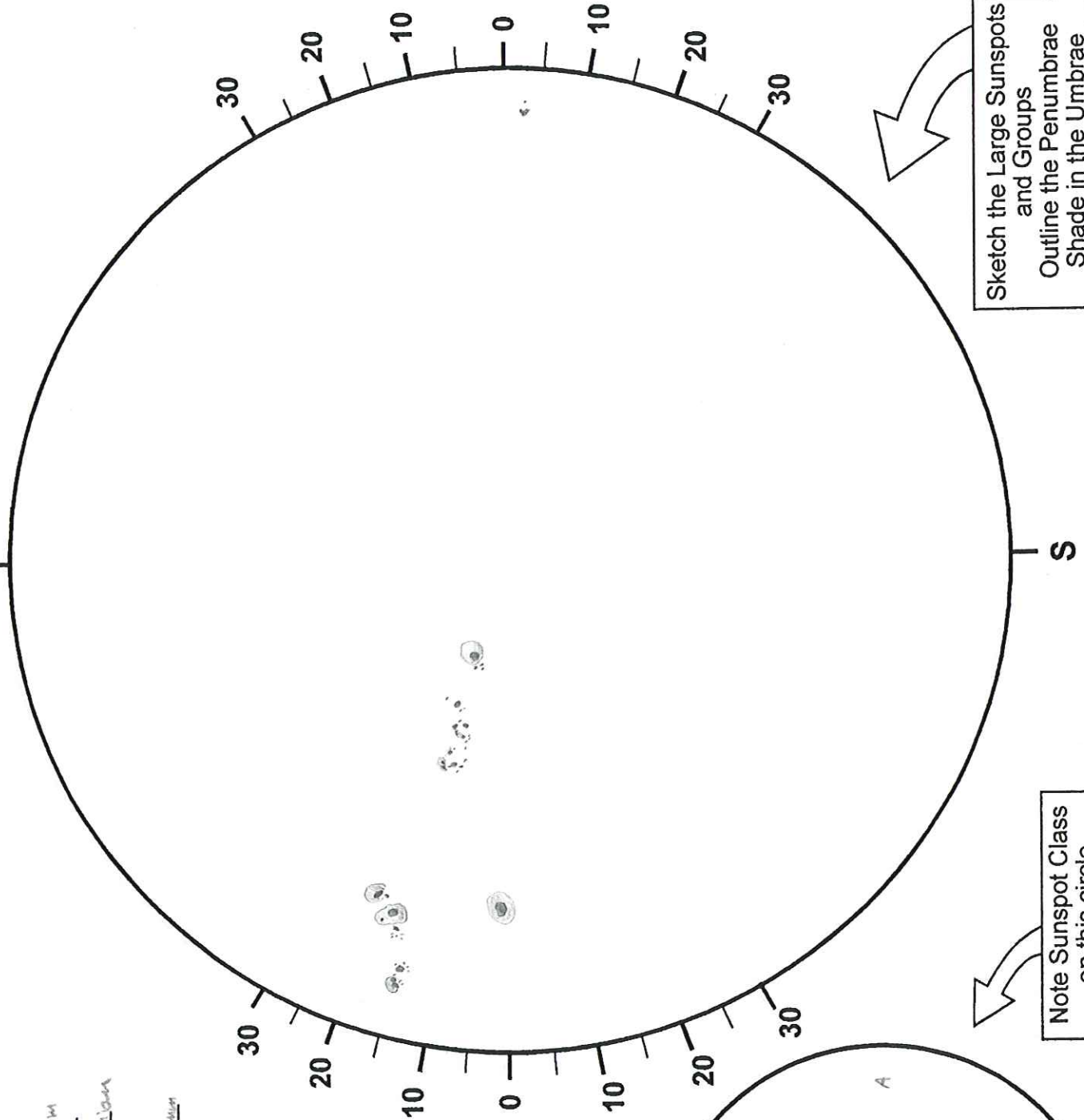
(N=north of solar equator, S=south)

Groups: N 3 + S 1 = 4

Spots: N 52 + S 3 = 55

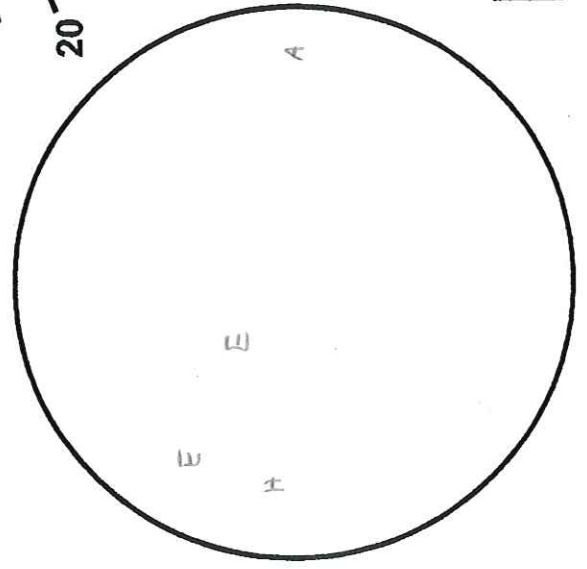
Wolf Sunspot Number (R):

R = 10G + S = 95



Sketch the Large Sunspots and Groups
 Outline the Penumbrae
 Shade in the Umbrae

Note Sunspot Class on this circle



SOLAR DISK DRAWING

Observer: Mila Haddad

Location: Brownfield, CA

Date/Time 3/21/04 10:01A ^{MSJ} (UT)

Sky:

Seeing Good Clouds Clear Wind None

Telescope Reflector Type Newtonian

Aperture Used 8"

Focal Length f/8 Eyepiece 19mm

Filter Baader

Observations:

Director Projected (circle one)

Total Sunspot Count:

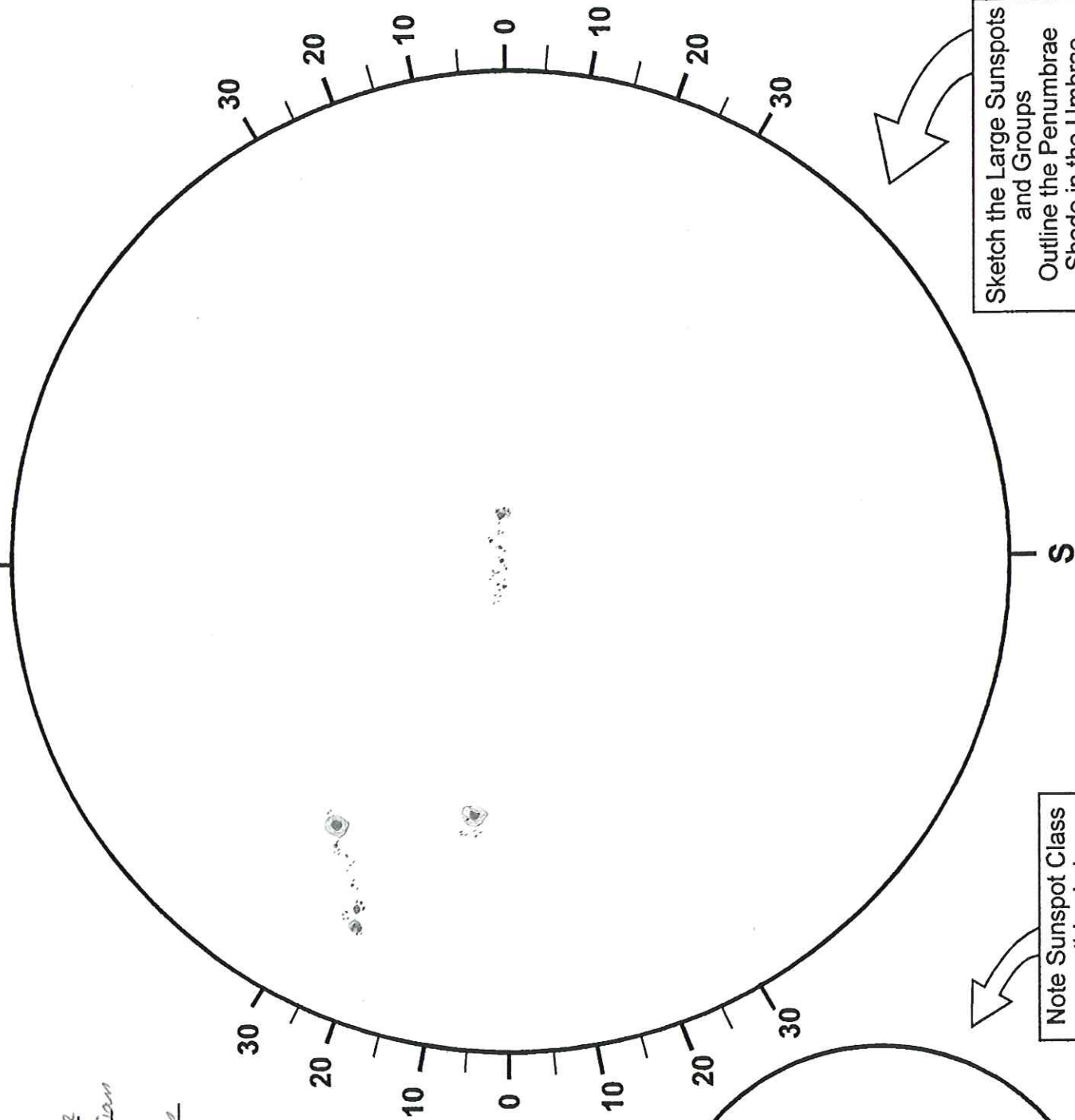
(N=north of solar equator, S=south)

Groups: N 3 +S 0 = 3

Spots: N 66 +S 0 = 66

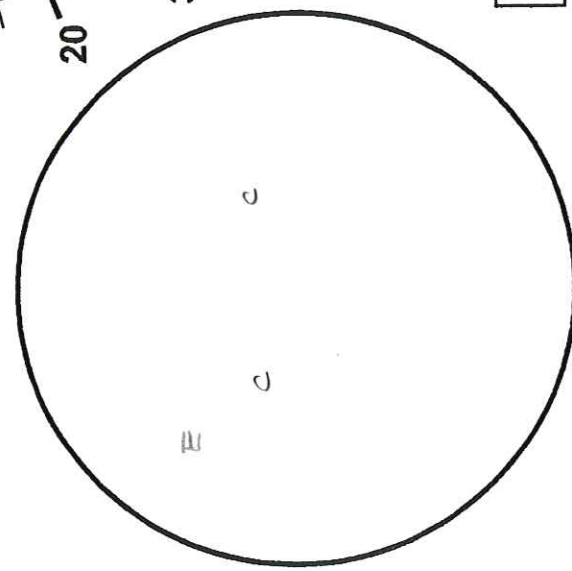
Wolf Sunspot Number (R):

$R = 10G + S = 96$



Sketch the Large Sunspots and Groups
Outline the Penumbrae
Shade in the Umbrae

Note Sunspot Class on this circle



SOLAR DISK DRAWING

Observer: Mike Notke
 Location: Brown Field, CO MST
 Date/Time 3/22/04 8:04A (UT)
 Sky: _____
 Seeing Great Clouds Clear Wind Calm
 Telescope Reflector Type Newtonian
 Aperture Used 8"
 Focal Length f/19 Eyepiece Ramin
 Filter Reader
 Observations: _____
 Director Projected (circle one)

Total Sunspot Count:

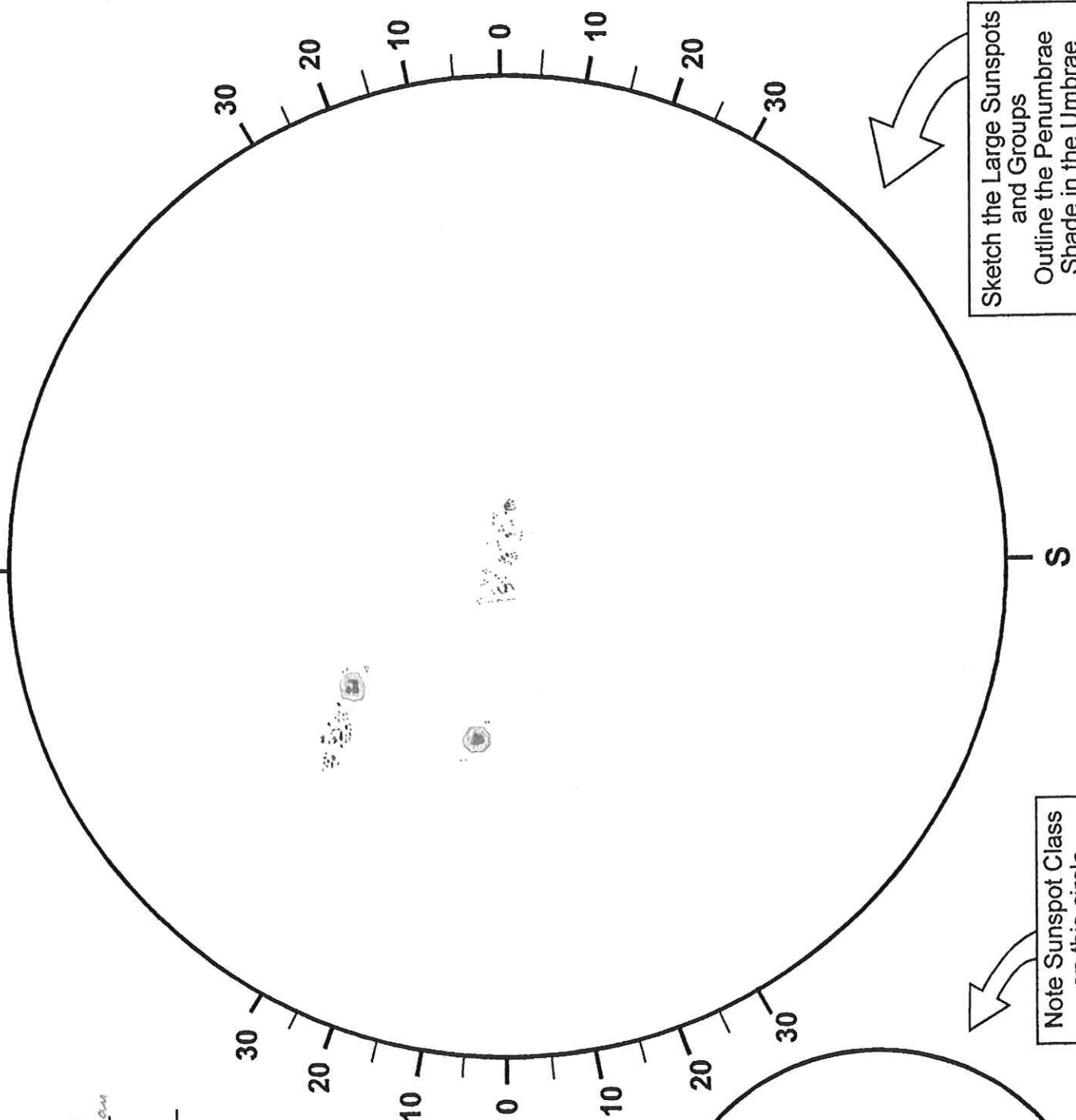
(N=north of solar equator, S=south)

Groups: N 25 + S 5 = 3

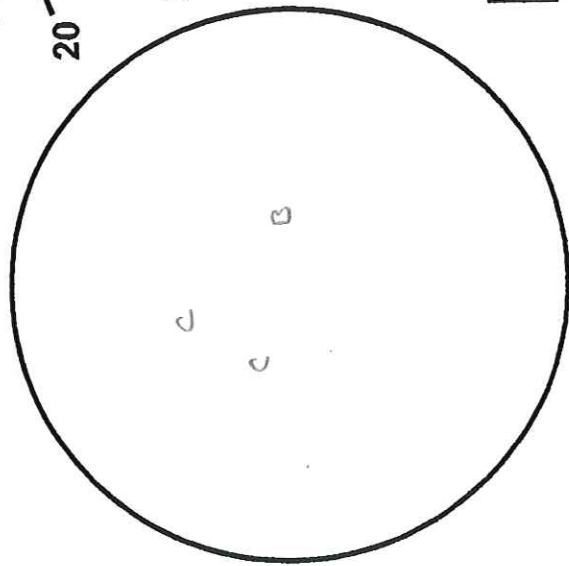
Spots: N 90 + S 37 = 127

Wolf Sunspot Number (R):

$R = 10G + S = 157$



Note Sunspot Class on this circle



N
E W
S

Big Bear Solar Observatory
2004-03-23 18:08:30 UT

N
E W
S



Big Bear Solar Observatory
2004-03-22 17:53:20 UT

SOLAR DISK DRAWING

Observer: Mike Hoke
 Location: Brownfield, Co ^{NST}
 Date/Time 3/24/04 7:43 A (UT)
 Sky: _____
 Seeing Good Clouds Thin Wind Calm
 Telescope Reflector Type Newtonian
 Aperture Used 8"
 Focal Length f/8 Eyepiece 19 mm
 Filter Band
 Observations: _____
Direct or Projected (circle one)

Total Sunspot Count:

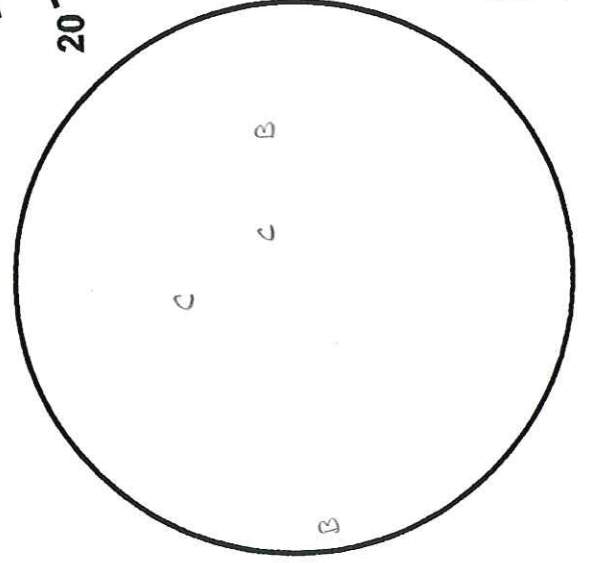
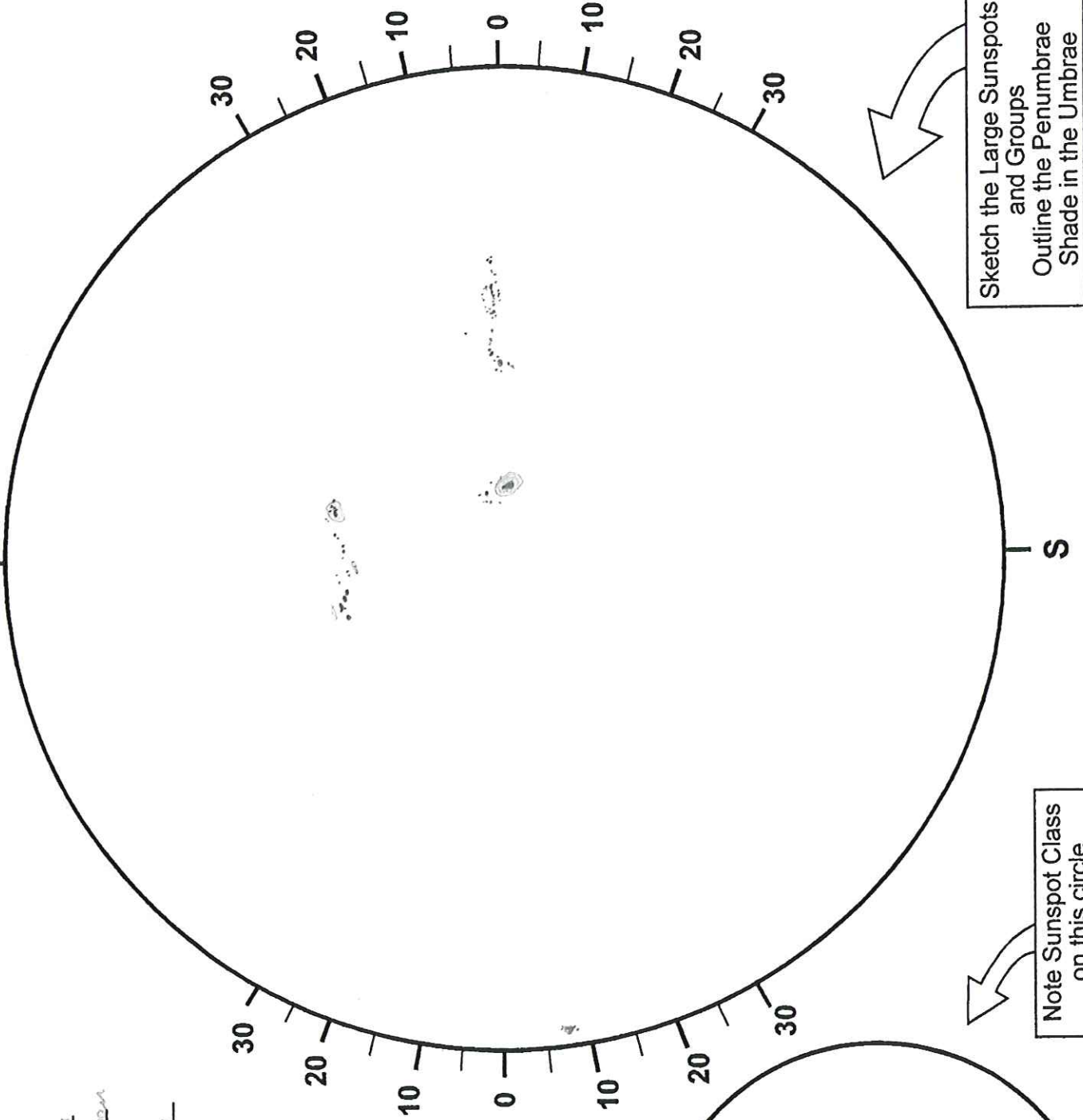
(N=north of solar equator, S=south)

Groups: N 2 + S 2 = 4

Spots: N 71 + S 14 = 85

Wolf Sunspot Number (R):

R = 10G + S = 125



SOLAR DISK DRAWING

Observer: Mike Antler
 Location: Brownfield, CO MST
 Date/Time: 3/25/04 7:56A (UT)
 Sky: Seeing Good Clouds Clear Wind Calm
 Telescope Reflector Type Newtsonian
 Aperture Used 8"
 Focal Length f/8 Eyepiece 19mm
 Filter Barlow

Observations:
Direct or Projected (circle one)

Total Sunspot Count:

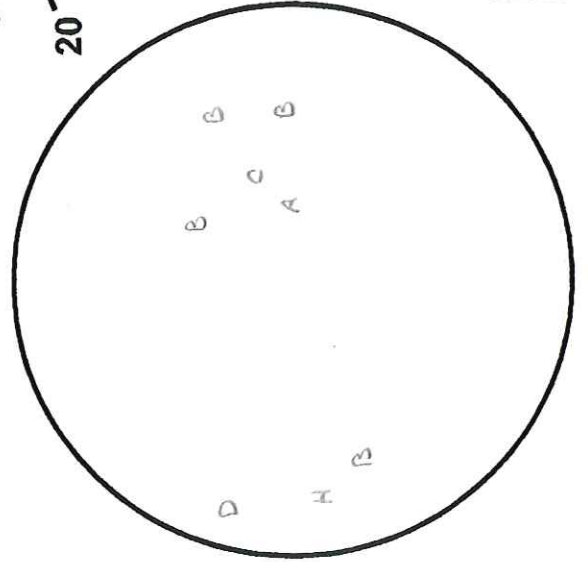
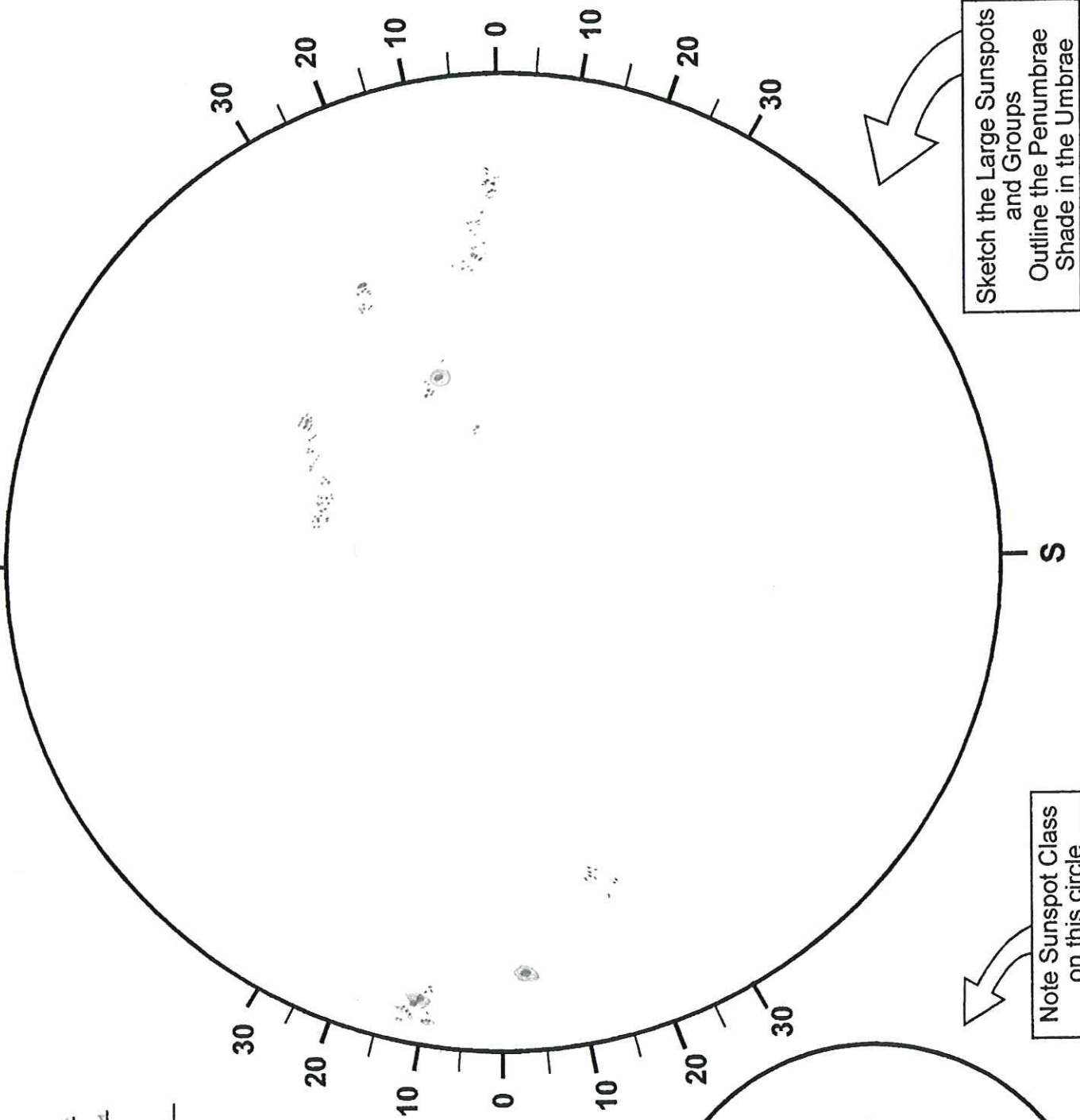
(N=north of solar equator, S=south)

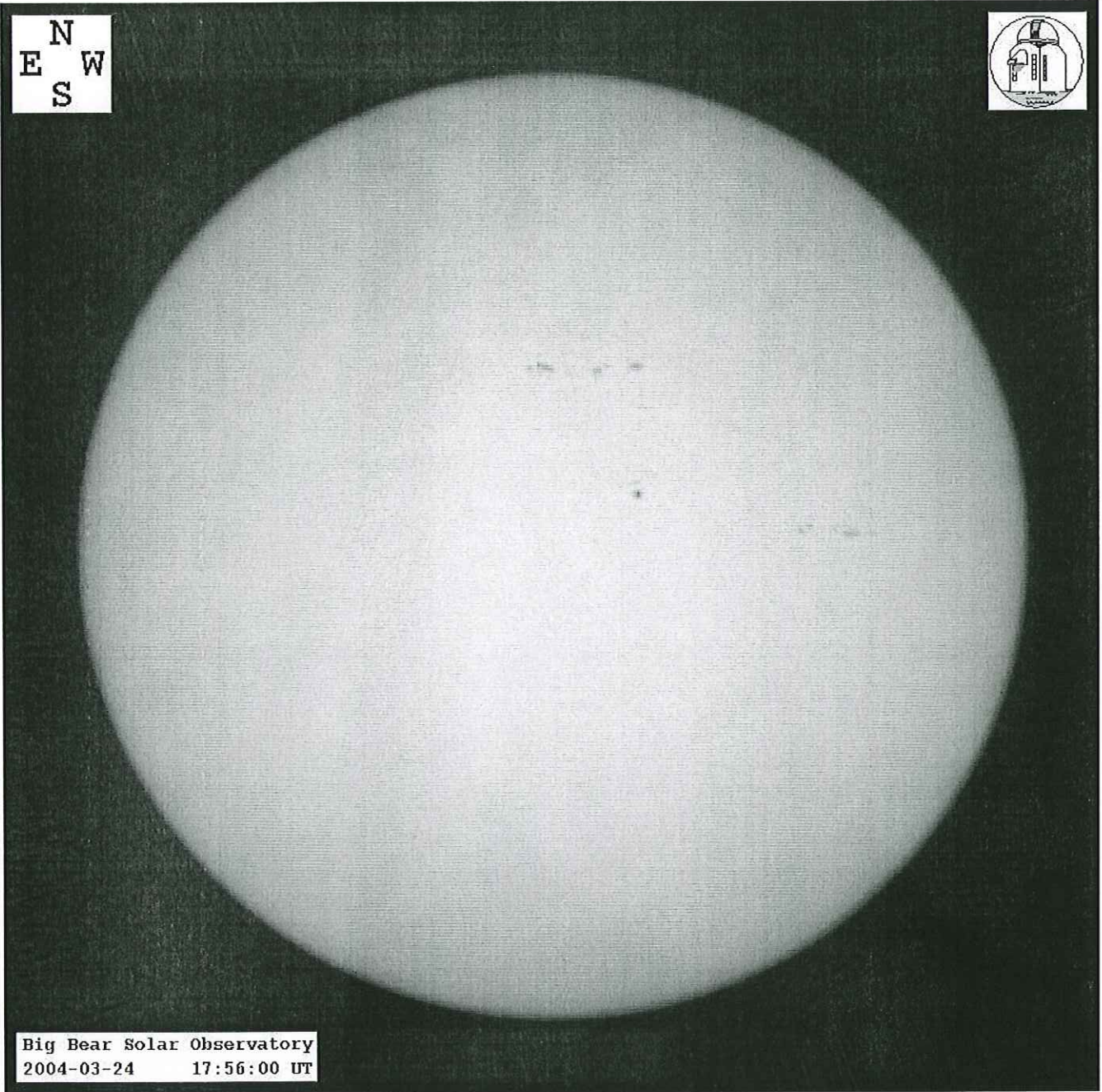
Groups: N 6 + S 2 = 8

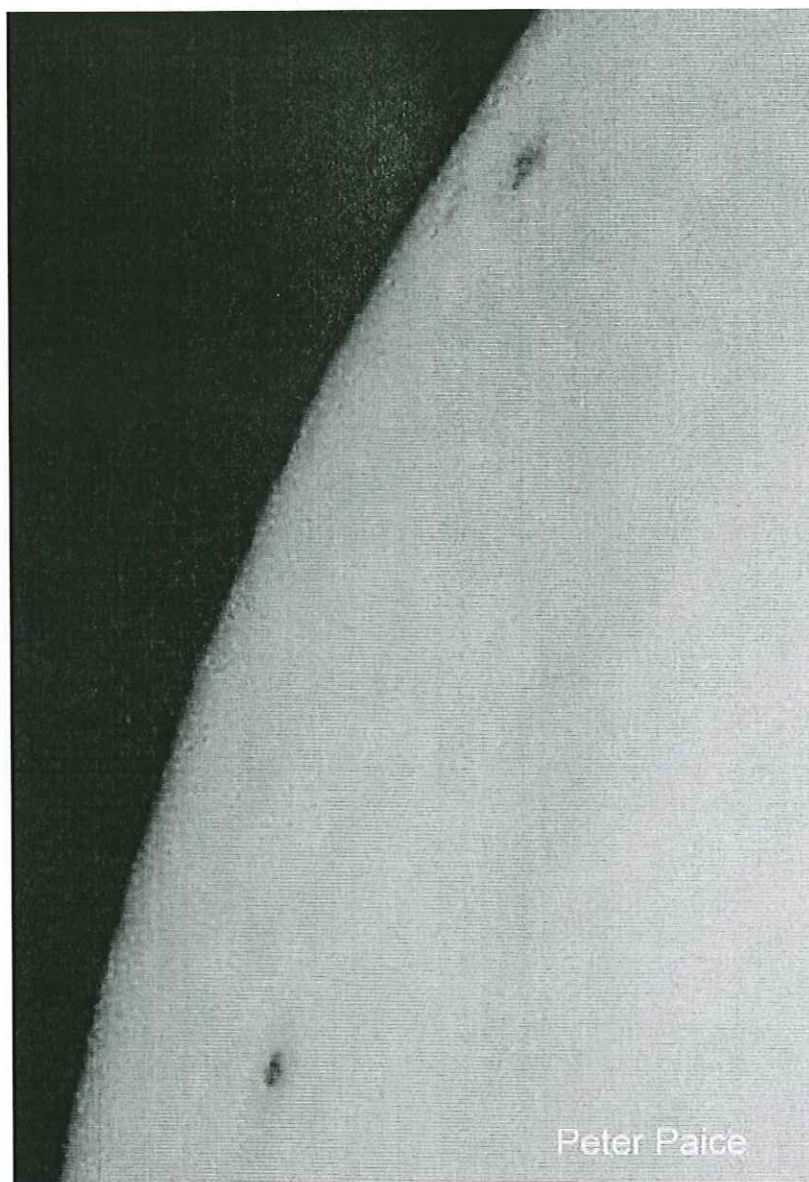
Spots: N 114 + S 10 = 124

Wolf Sunspot Number (R):

R = 10G + S = 204







SOLAR DISK DRAWING

Observer: Mike Hunter

Location: Brownsville, TX

Date/Time 3/26/14 7:38A (UT)

Sky:

Seeing Great Clouds Clear Wind Calan

Telescope Reflector Type Newtonian

Aperture Used 8"

Focal Length 818 Eyepiece 19mm

Filter Barlow

Observations:

Direct or Projected (circle one)

Total Sunspot Count:

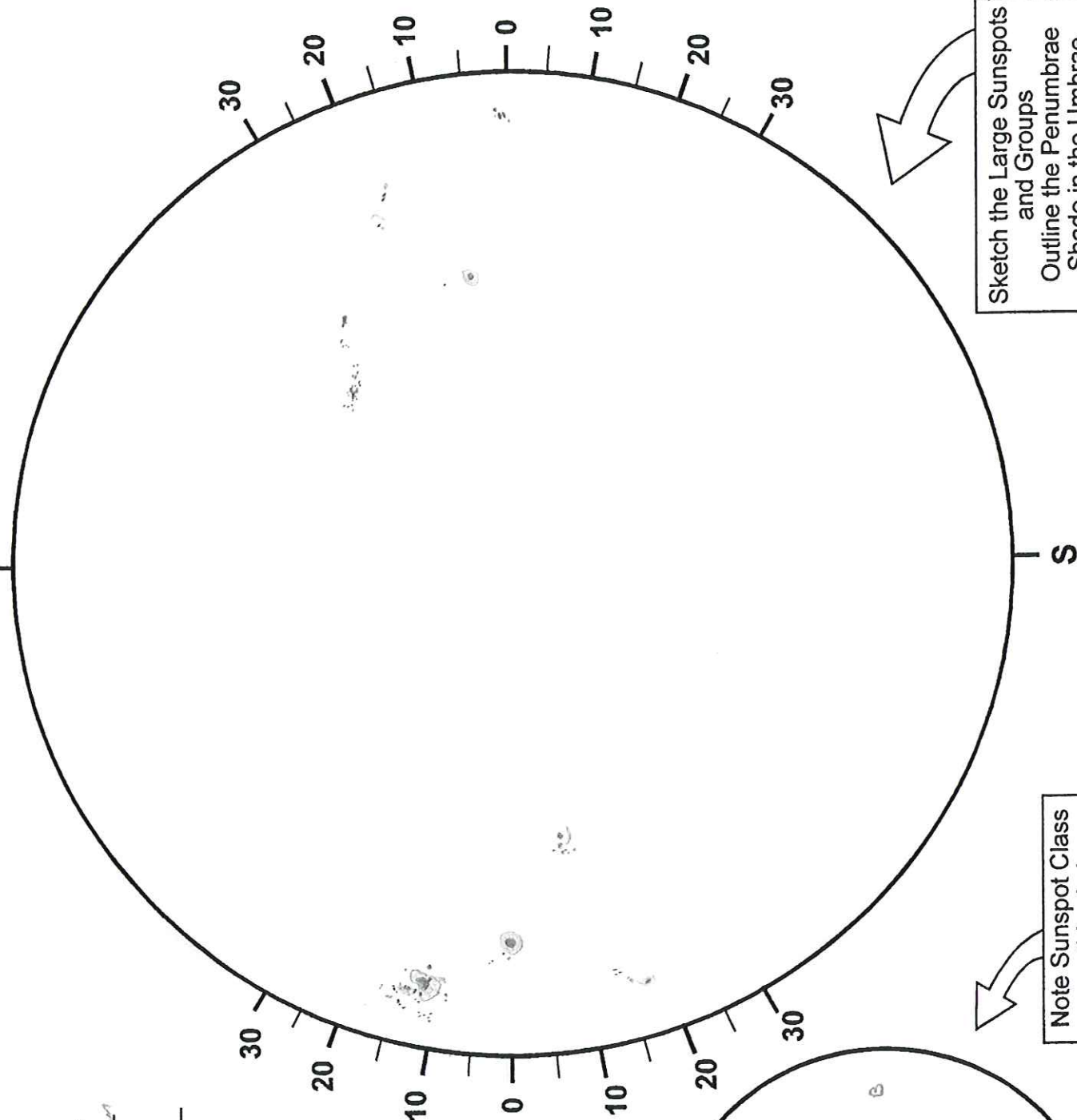
(N=north of solar equator, S=south)

Groups: N 5.5 + S 3.5 = 9

Spots: N 41 + S 15 = 56

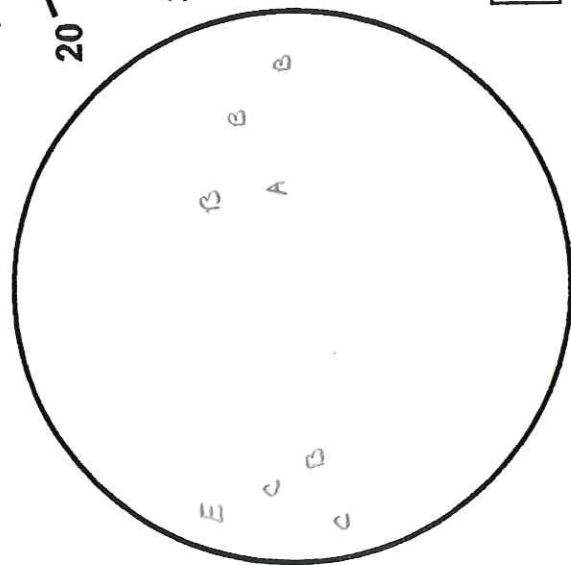
Wolf Sunspot Number (R):

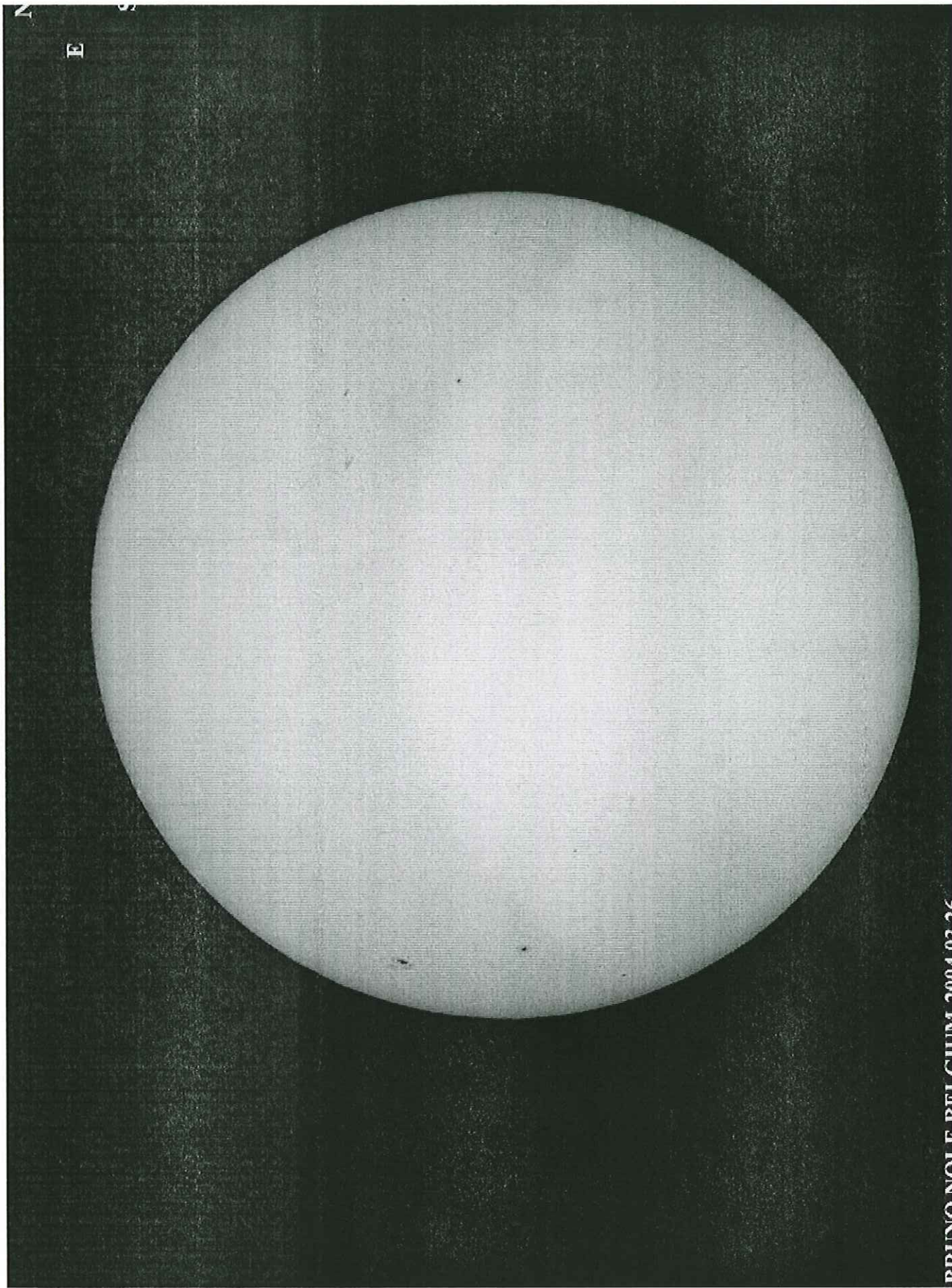
R = 10G + S = 146



Sketch the Large Sunspots
and Groups
Outline the Penumbrae
Shade in the Umbrae

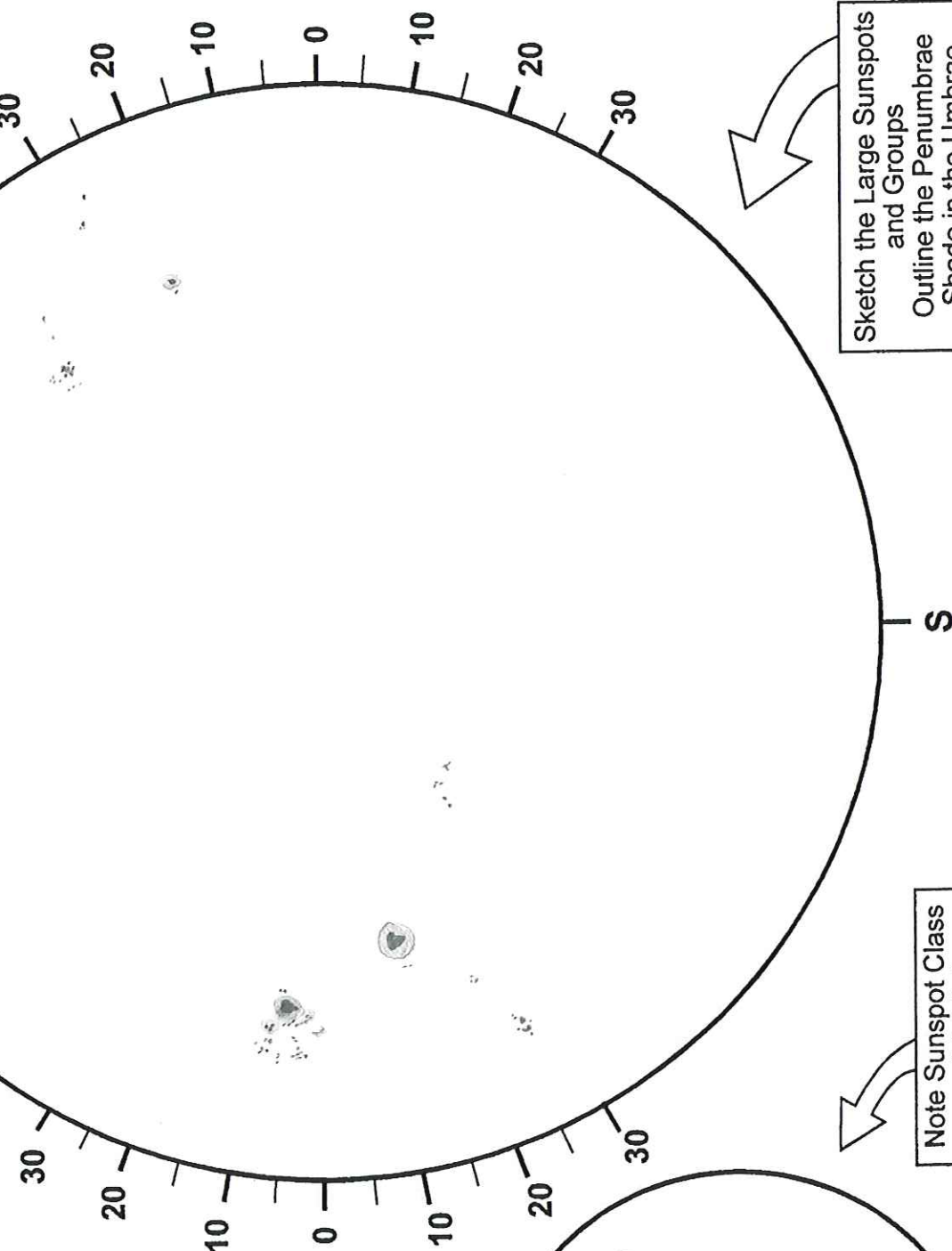
Note Sunspot Class
on this circle





SOLAR DISK DRAWING

Observer: Mila Hotler
 Location: Rosemead, CA MST
 Date/Time: 5/27/04 11:32A (UT)
 Sky: Seeing Good Clouds P/c Wind Mild-S
 Telescope: Reflector Type Newtonian
 Aperture Used: 8"
 Focal Length: 21/8 Eyepiece 19mm
 Filter: Band



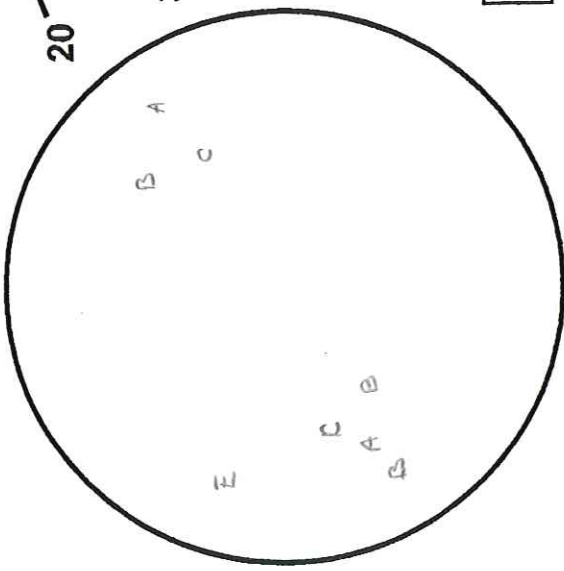
Sketch the Large Sunspots and Groups
 Outline the Penumbrae
 Shade in the Umbrae

Note Sunspot Class on this circle

Observations:
Direct or Projected (circle one)

Total Sunspot Count:
 (N=north of solar equator, S=south)
 Groups: N 4 + S 4 = 8
 Spots: N 54 + S 22 = 76

Wolf Sunspot Number (R):
 $R = 10G + S = 156$



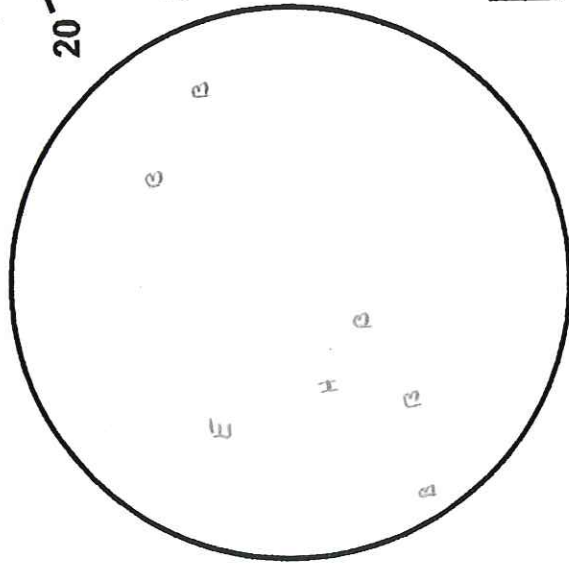
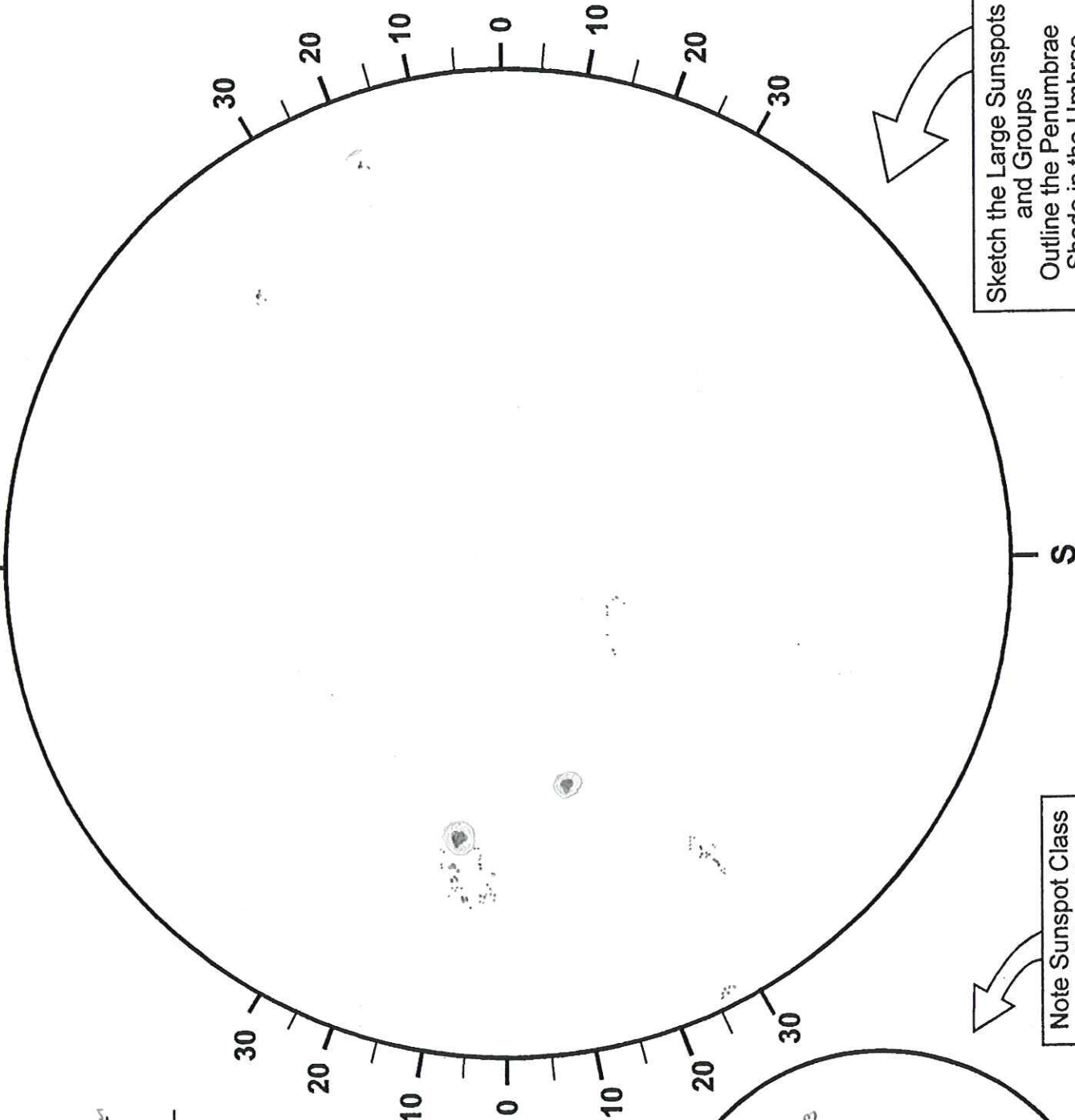
SOLAR DISK DRAWING

Observer: Mike Hottel
 Location: Bloomfield Co ^{MST}
 Date/Time 3/28/04 10:57A (UT)
 Sky: High Mild
 Seeing Good Clouds P/C Wind SE
 Telescope Ritchey Type Newtonian
 Aperture Used 8"
 Focal Length 218 Eyepiece 19mm
 Filter Barlow

Observations:
Direct or Projected (circle one)

Total Sunspot Count:
 (N=north of solar equator, S=south)
 Groups: N 3 + S 4 = 7
 Spots: N 43 + S 35 = 78

Wolf Sunspot Number (R):
 $R = 10G + S = 148$



SOLAR DISK DRAWING

Observer: Mike Watkins
 Location: Broomfield, CO MST
 Date/Time: 3/29/04 7:53 A (UT)
 Sky: Light
 Seeing Good Clouds Clear Wind SE
 Telescope Reflector Type Newtonian
 Aperture Used 8"
 Focal Length 218 Eyepiece 19mm
 Filter Barlow
 Observations:
 Direct or Projected (circle one)

Total Sunspot Count:

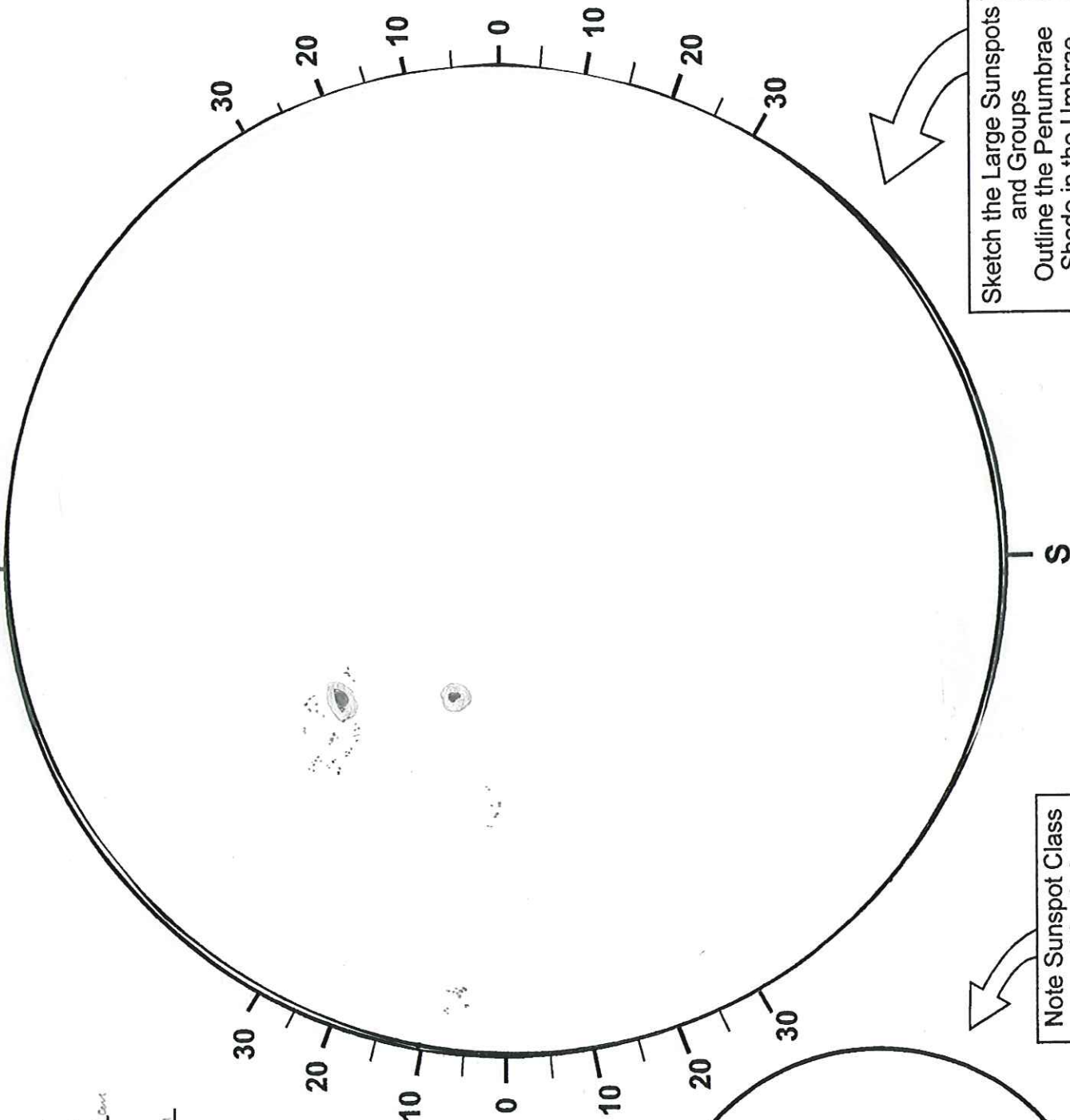
(N=north of solar equator, S=south)

Groups: N 4 + S 0 = 4

Spots: N 67 + S 0 = 67

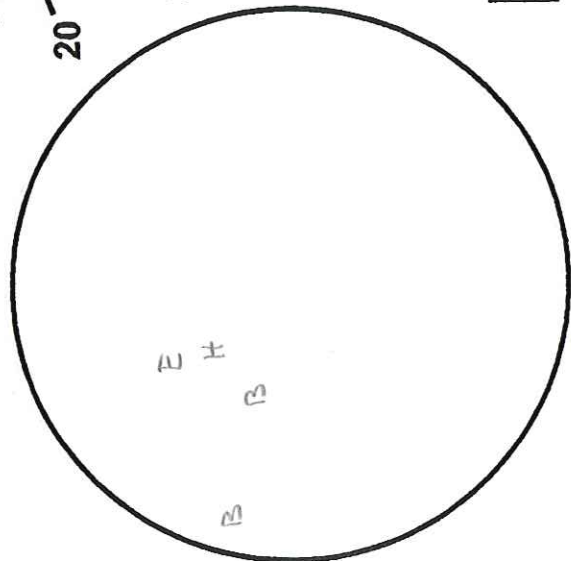
Wolf Sunspot Number (R):

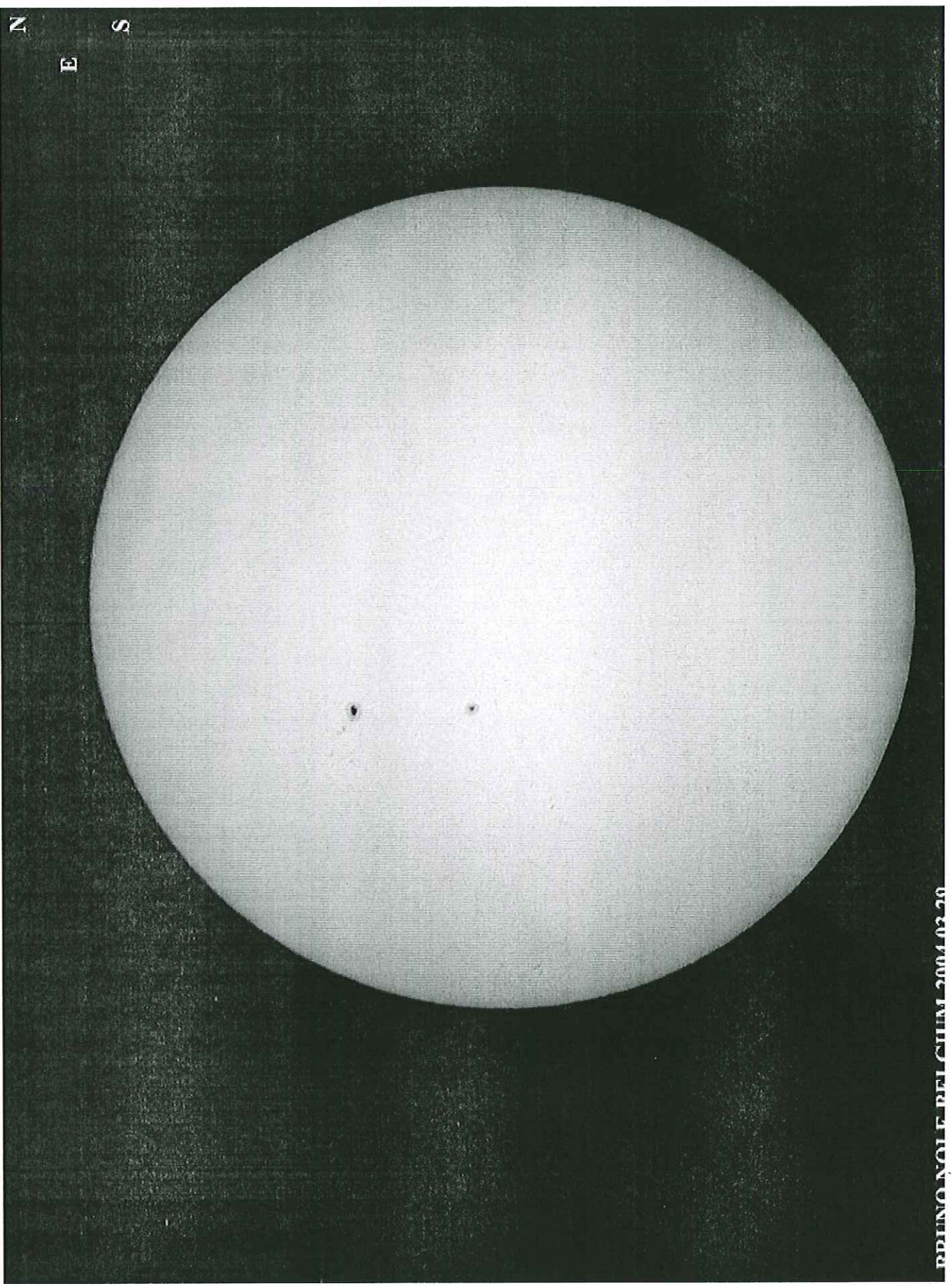
R = 10G + S = 107



Sketch the Large Sunspots
and Groups
Outline the Penumbrae
Shade in the Umbrae

Note Sunspot Class
on this circle





SOLAR DISK DRAWING

Observer: Mike Hoyer
 Location: Brownfield, CO
 Date/Time 3/30/04 7:55A (UT)
 Sky: _____
 Seeing Great Clouds Clear Wind Calm
 Telescope Reflector Type Newtsonian
 Aperture Used 8"
 Focal Length f/10 Eyepiece 19 mm
 Filter Reader

Observations:
Direct or Projected (circle one)

Total Sunspot Count:

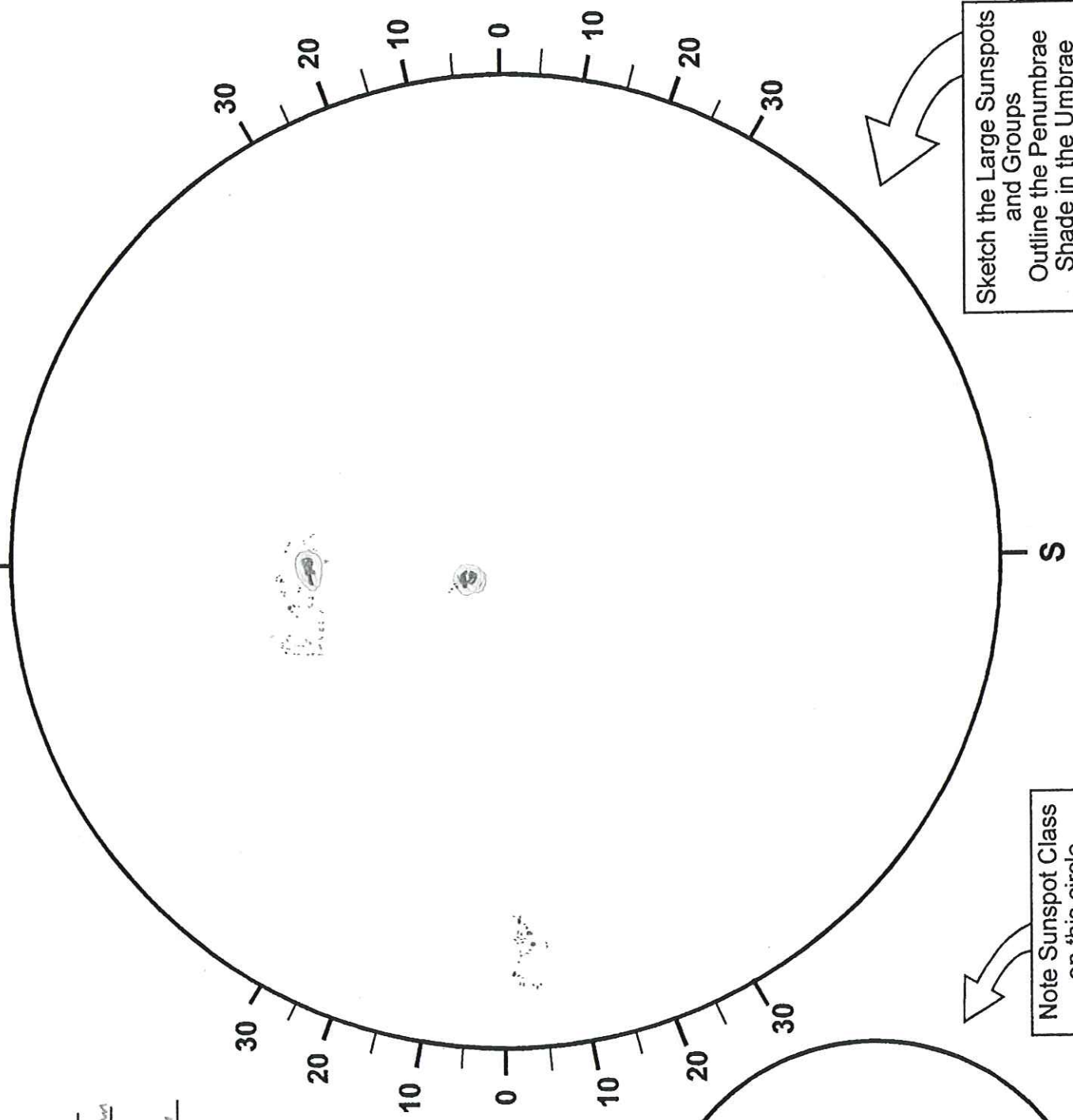
(N=north of solar equator, S=south)

Groups: N 2 + S 1 = 3

Spots: N 12 + S 30 = 102

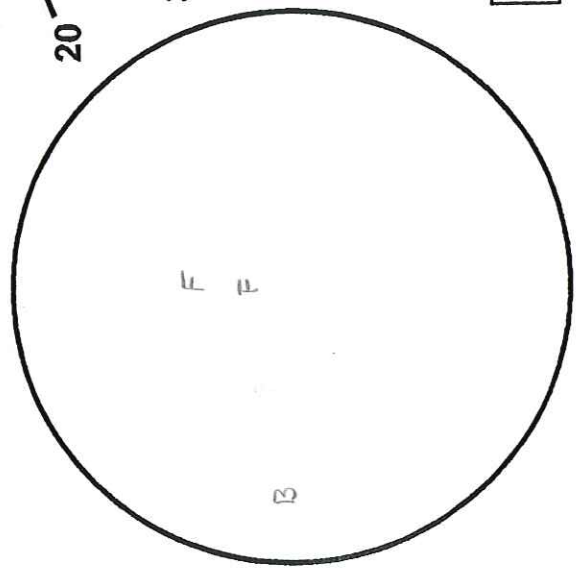
Wolf Sunspot Number (R):

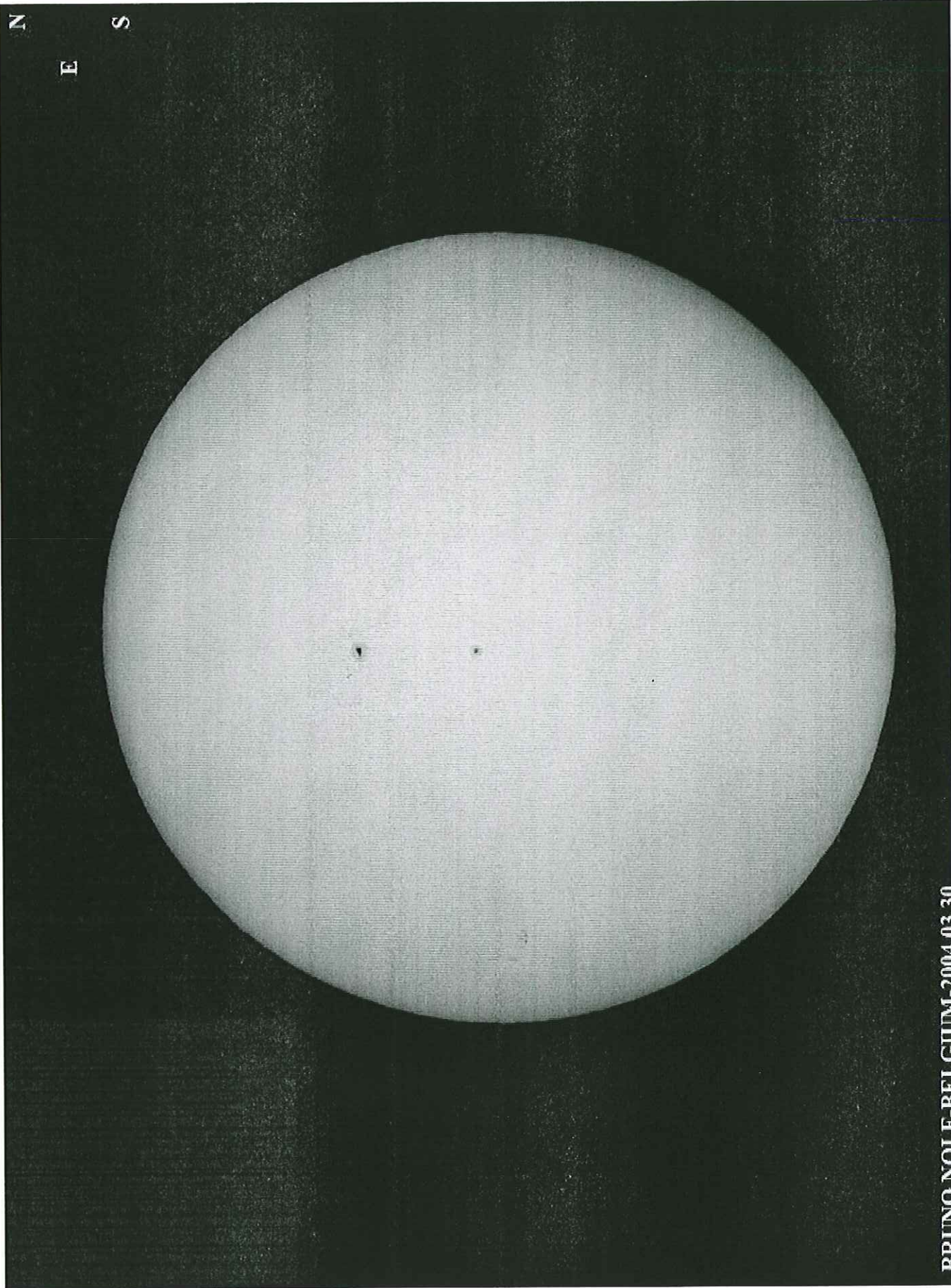
$R = 10G + S = 132$



Sketch the Large Sunspots
 and Groups
 Outline the Penumbrae
 Shade in the Umbrae

Note Sunspot Class
 on this circle





BRUNO NOLF-REI CHIM-2004-03-30

SOLAR DISK DRAWING

Observer: Mike Hottel
 Location: Brownsfield, CO ^{MS}
 Date/Time 3/31/04 7:44A (UT)
 Sky: _____
 Seeing Great Clouds Clear Wind Calm
 Telescope Reflector Type Newtonian
 Aperture Used 8"
 Focal Length f/8 Eyepiece 19 mm
 Filter Baader

Observations:

Direct or Projected (circle one)

Total Sunspot Count:

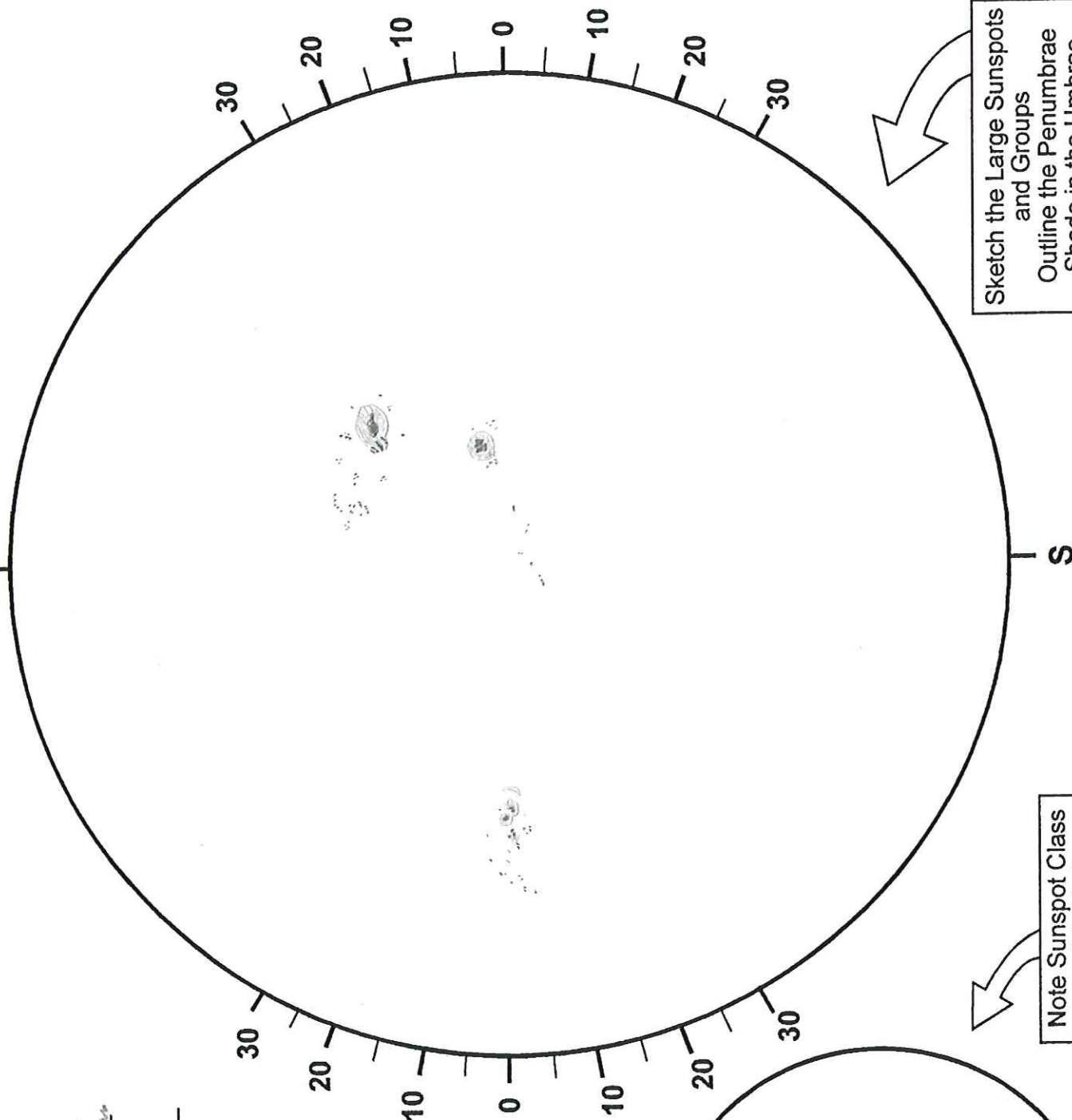
(N=north of solar equator, S=south)

Groups: N 2.5 + S 1.5 = 4

Spots: N 72 + S 26 = 98

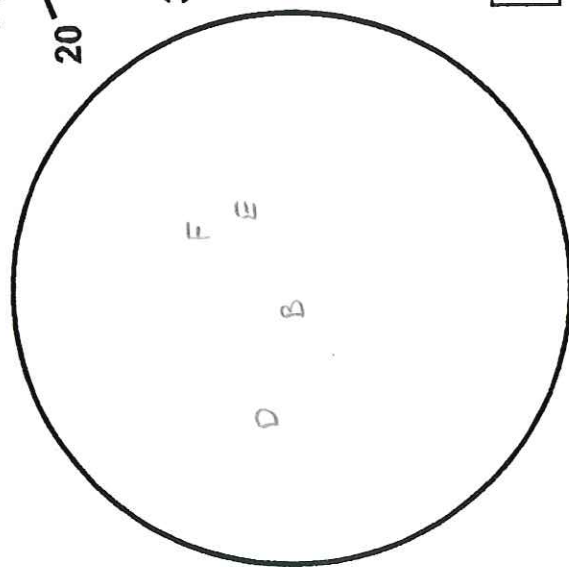
Wolf Sunspot Number (R):

R = 10G + S = 138



Sketch the Large Sunspots and Groups
 Outline the Penumbrae
 Shade in the Umbrae

Note Sunspot Class on this circle



SOLAR DISK DRAWING

Observer: Mike Hottel
 Location: Barnesfield, CO ^{NST}
 Date/Time 4/1/04 7:50A (UT)
 Sky: _____
 Seeing Great Clouds Clear Wind Calms
 Telescope Redfield 8" Type Newtsonian
 Aperture Used 8"
 Focal Length 919 Eyepiece 19 mm
 Filter Baader

Observations:
Direct or Projected (circle one)

Total Sunspot Count:

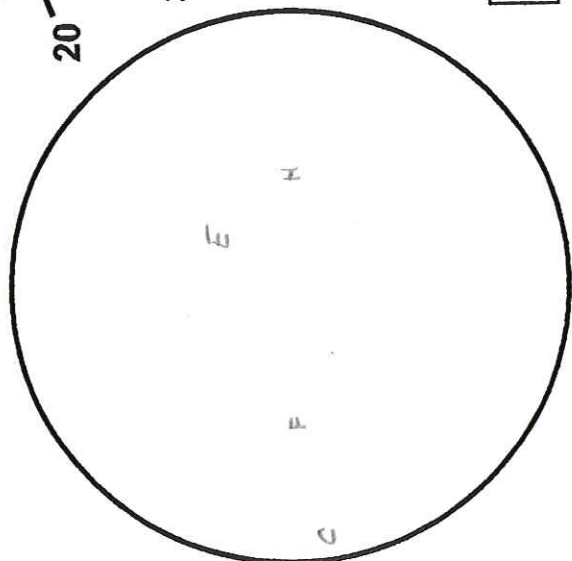
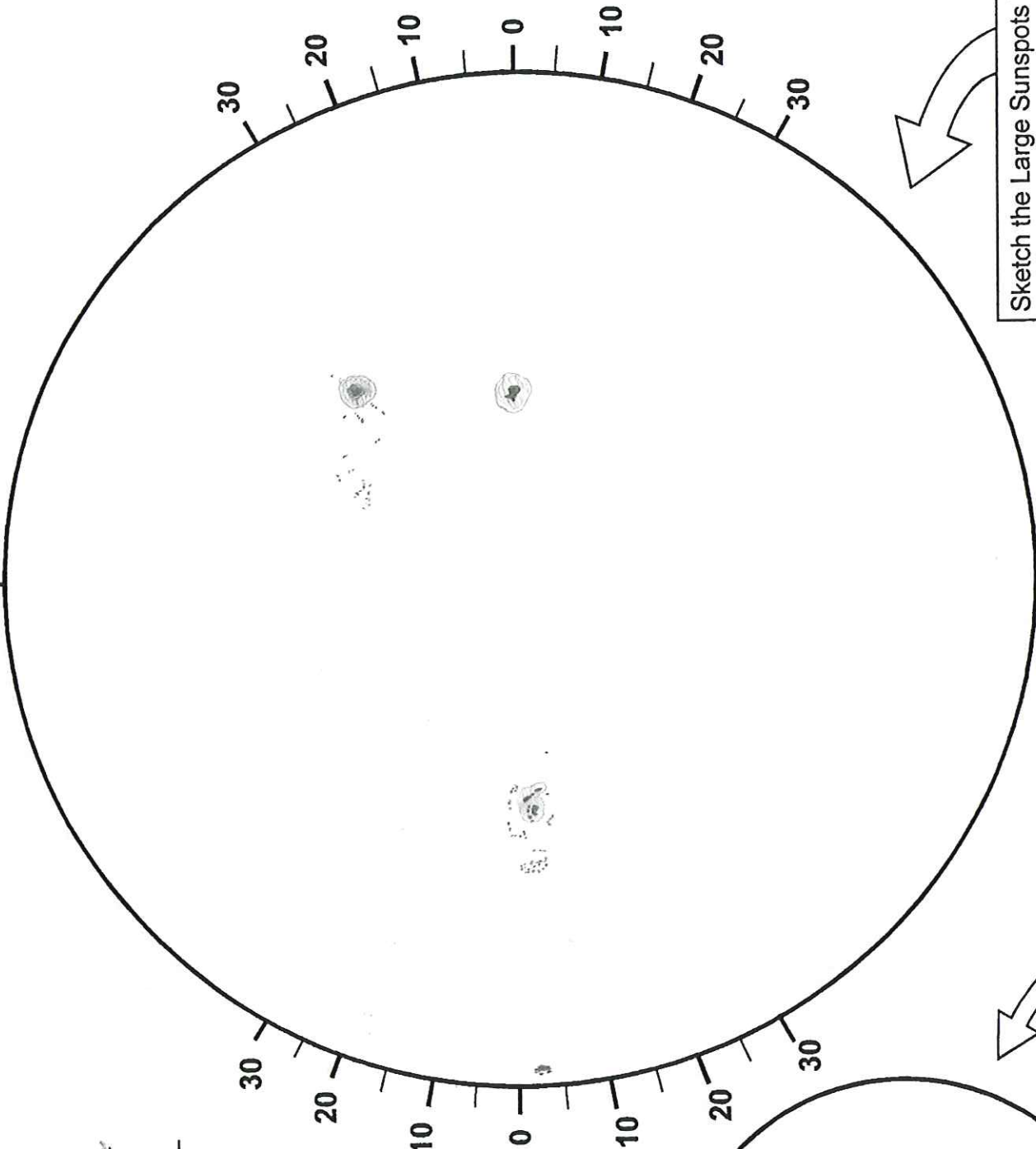
(N=north of solar equator, S=south)

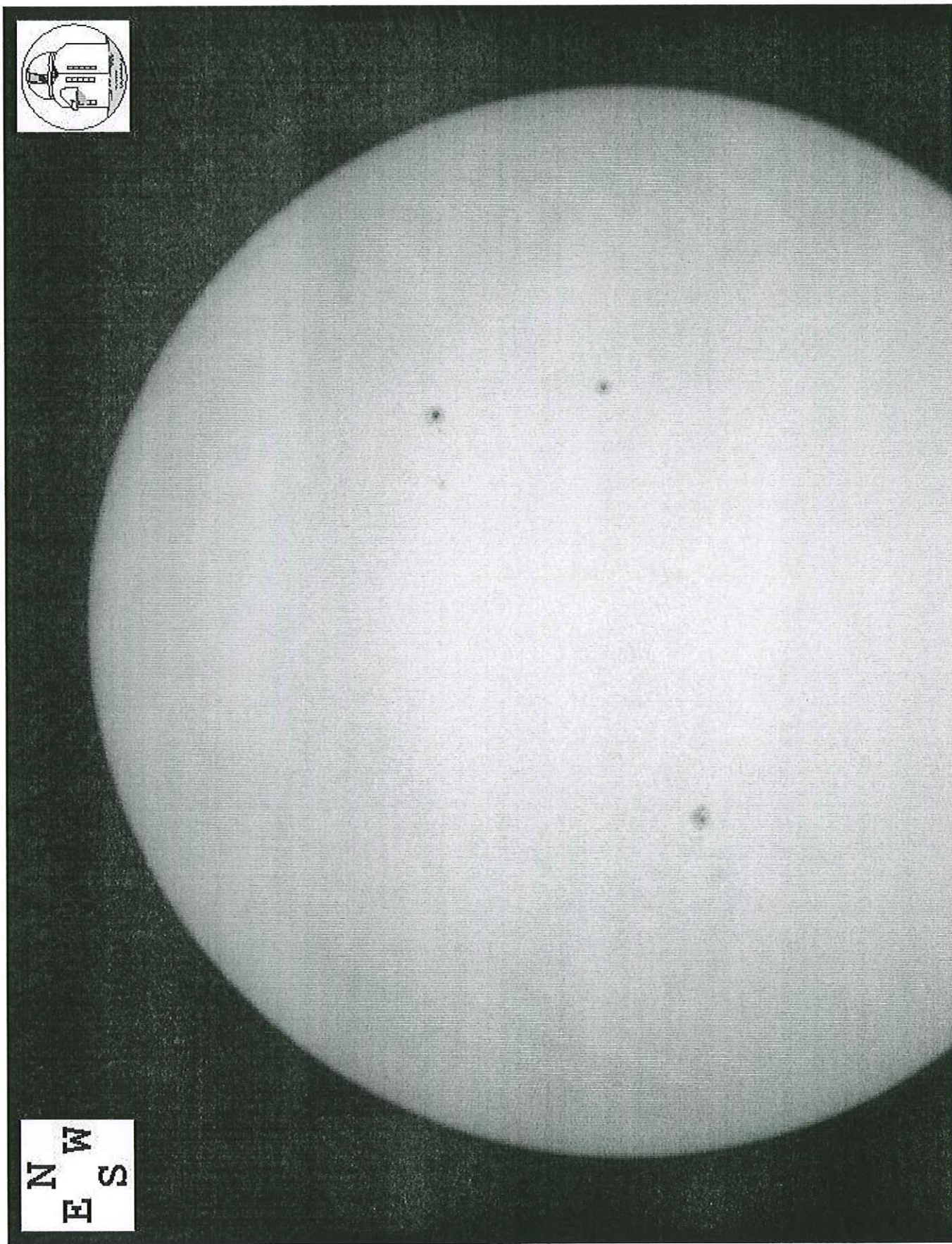
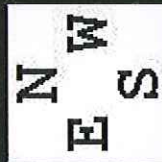
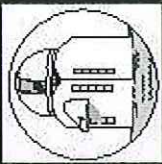
Groups: N 2 + S 2 = 4

Spots: N 47 + S 37 = 84

Wolf Sunspot Number (R):

$R = 10G + S = 124$





SOLAR DISK DRAWING

Observer: Mike Hotlee
 Location: Burnsville, CO MDT
 Date/Time 3/4/04 9:26 A (UT)
 Sky: _____
 Seeing Great Clouds Clear Wind Calm
 Telescope Reflector Type Newtonian
 Aperture Used 8"
 Focal Length 418 Eyepiece 11mm
 Filter Barlow

Observations:
 Direct or Projected (circle one)

Total Sunspot Count:

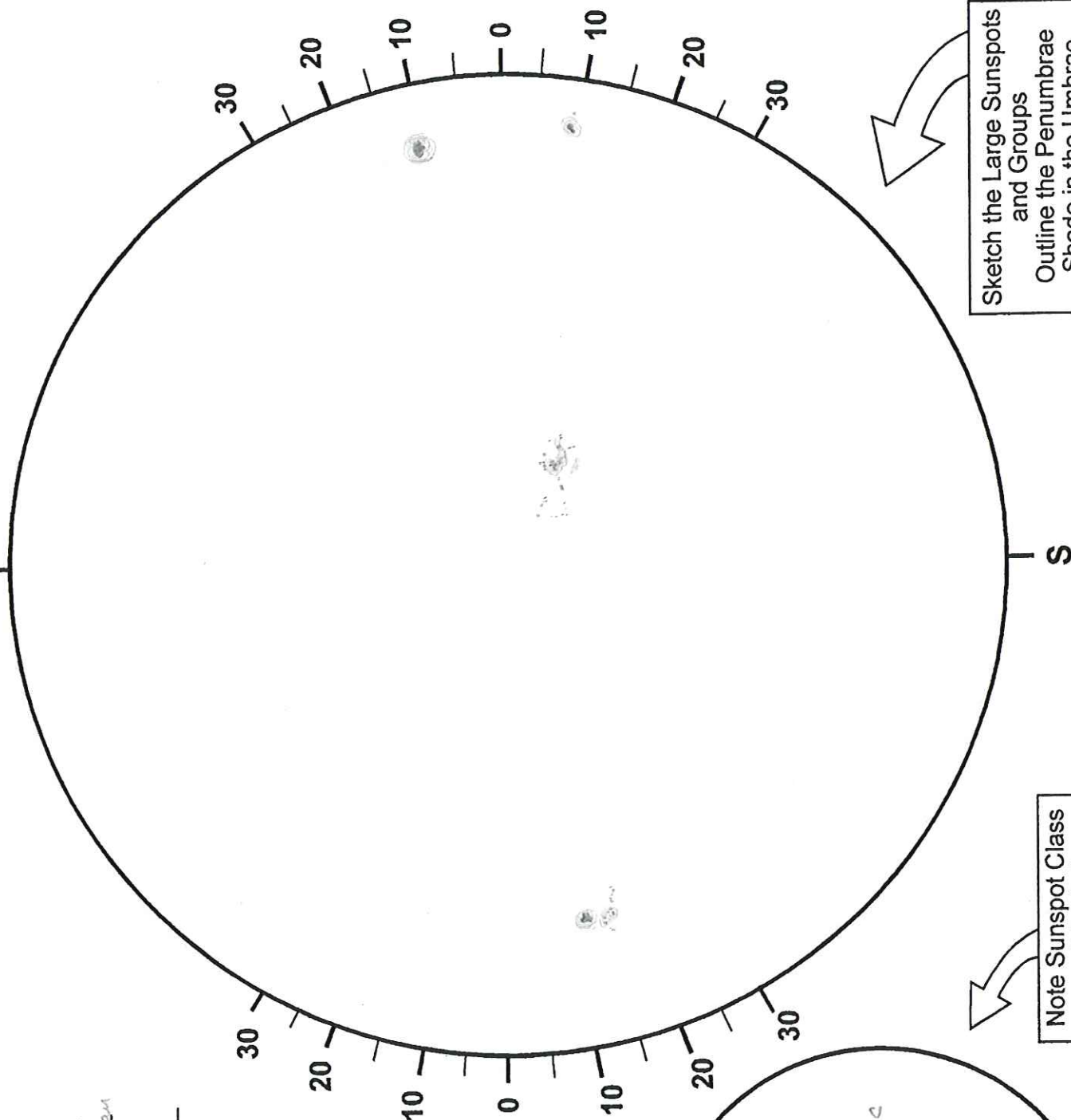
(N=north of solar equator, S=south)

Groups: N 1 + S 3 = 4

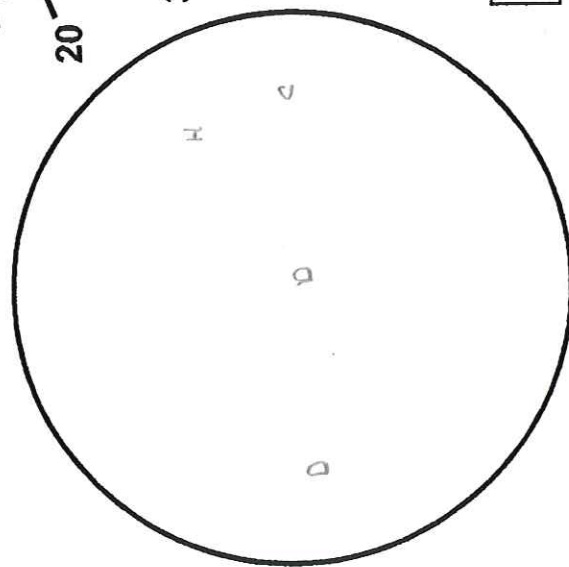
Spots: N 1 + S 43 = 44

Wolf Sunspot Number (R):

R = 10G + S = 84



Note Sunspot Class on this circle



SOLAR DISK DRAWING

Observer: Mike Hartley
 Location: Burnsfield, CO MOT
 Date/Time: 3/5/04 7:51 AM (UT)
 Sky: _____
 Seeing: best Clouds: Clear Wind: Calm
 Telescope: Reflector Type: Newtsonian
 Aperture Used: 8"
 Focal Length: f/8 Eyepiece: 19 mm
 Filter: Reader

Observations:
Direct or Projected (circle one)

Total Sunspot Count:

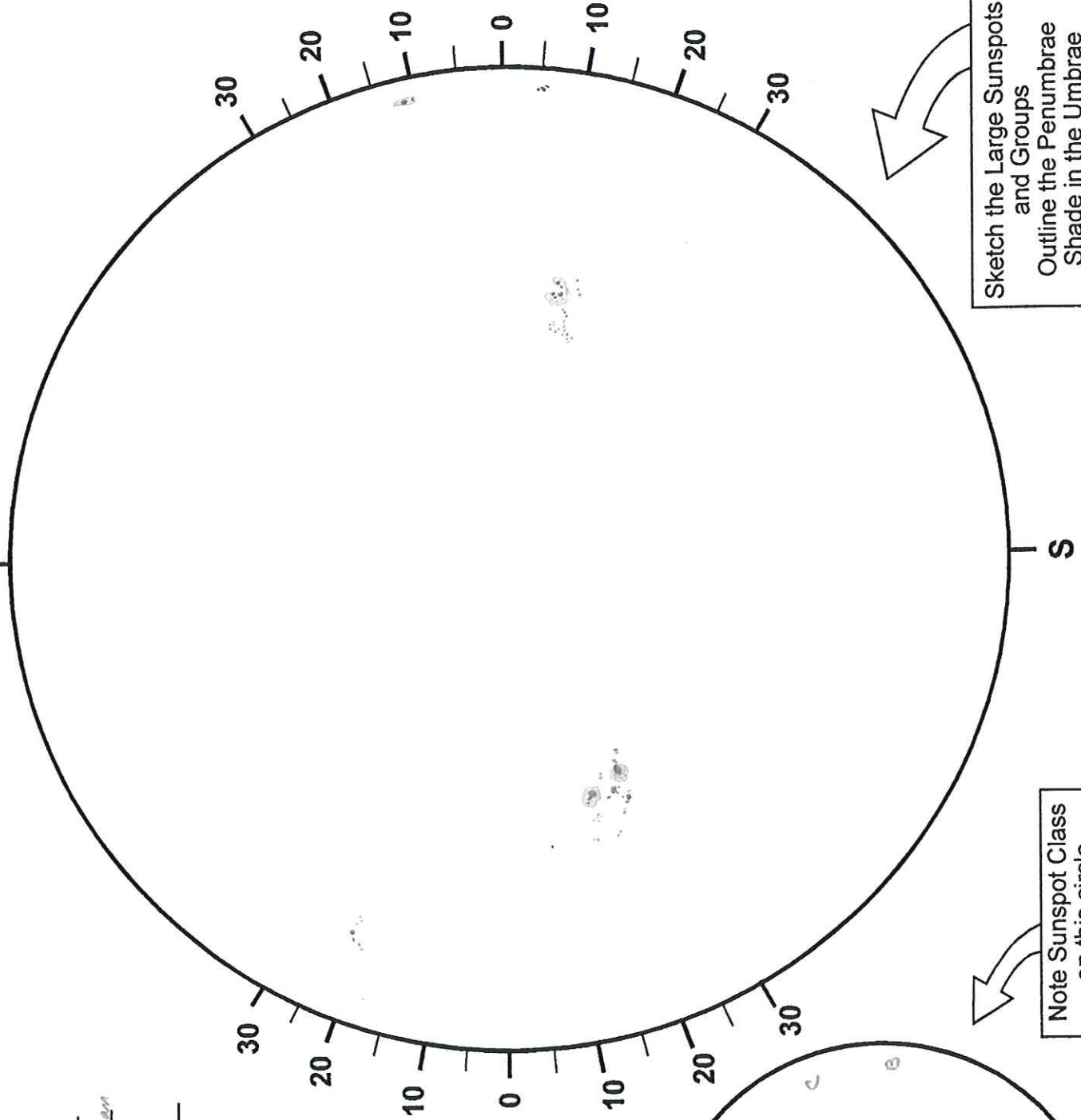
(N=north of solar equator, S=south)

Groups: N 2 + S 3 = 5

Spots: N 9 + S 56 = 65

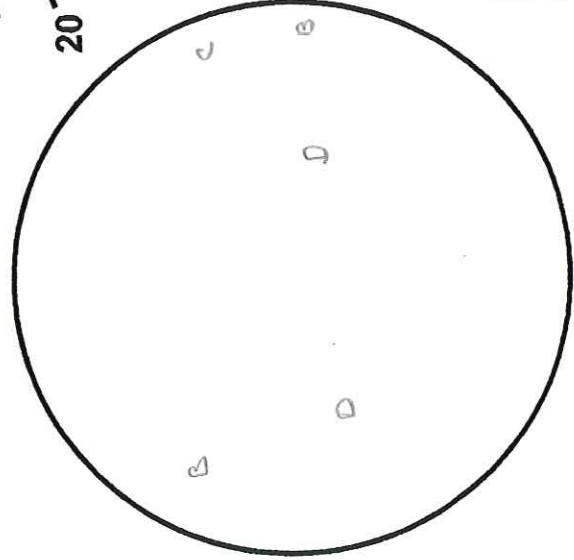
Wolf Sunspot Number (R):

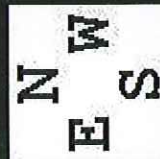
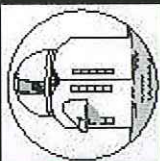
$R = 10G + S = 115$



Sketch the Large Sunspots and Groups
 Outline the Penumbrae
 Shade in the Umbrae

Note Sunspot Class on this circle





N
E W
S

Big Bear Solar Observatory
2004-04-05 16:44:54 UT

SOLAR DISK DRAWING

Observer: Mike Hottel
 Location: Broomfield, CO MDT
 Date/Time 3/6/04 5:48P (UT)
 Sky: light
 Seeing good Clouds P/c Wind SE
 Telescope Reflector Type Newtonian
 Aperture Used 8"
 Focal Length 218 Eyepiece 19mm
 Filter Reader

Observations:
 Director Projected (circle one)

Total Sunspot Count:

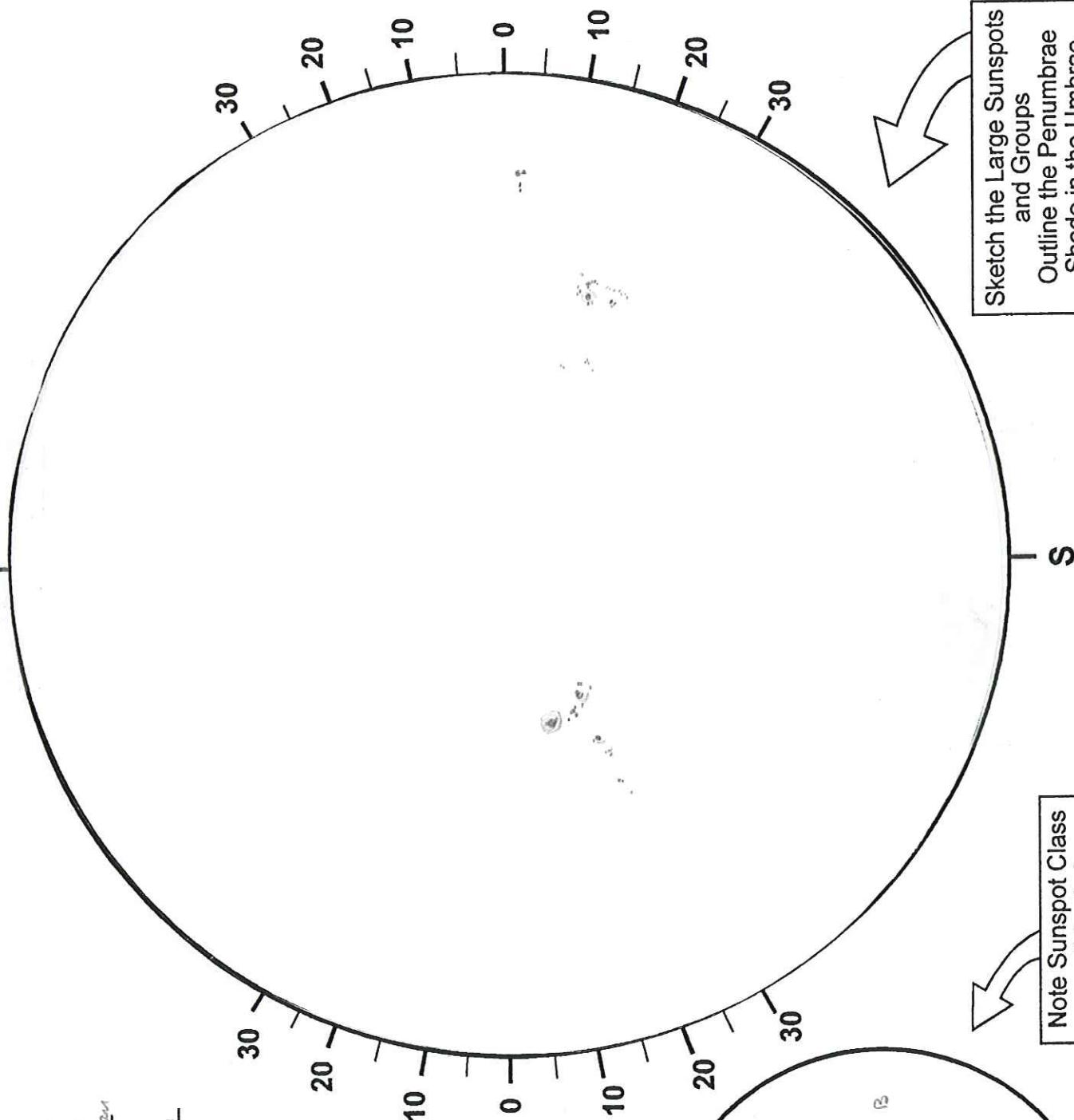
(N=north of solar equator, S=south)

Groups: N 0 + S 4 = 4

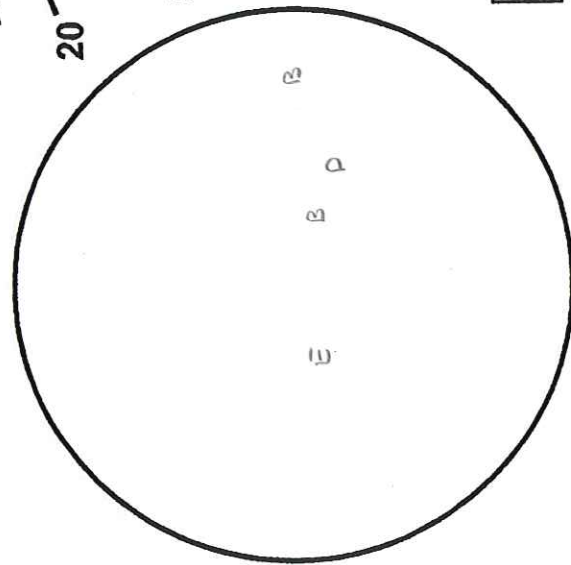
Spots: N 0 + S 54 = 54

Wolf Sunspot Number (R):

R = 10G + S = 94



Note Sunspot Class on this circle



SOLAR DISK DRAWING

Observer: Mike Notley
 Location: Bramfield, CO
 Date/Time: 3/7/04 7:56 AM (UT)
 Sky: MDT

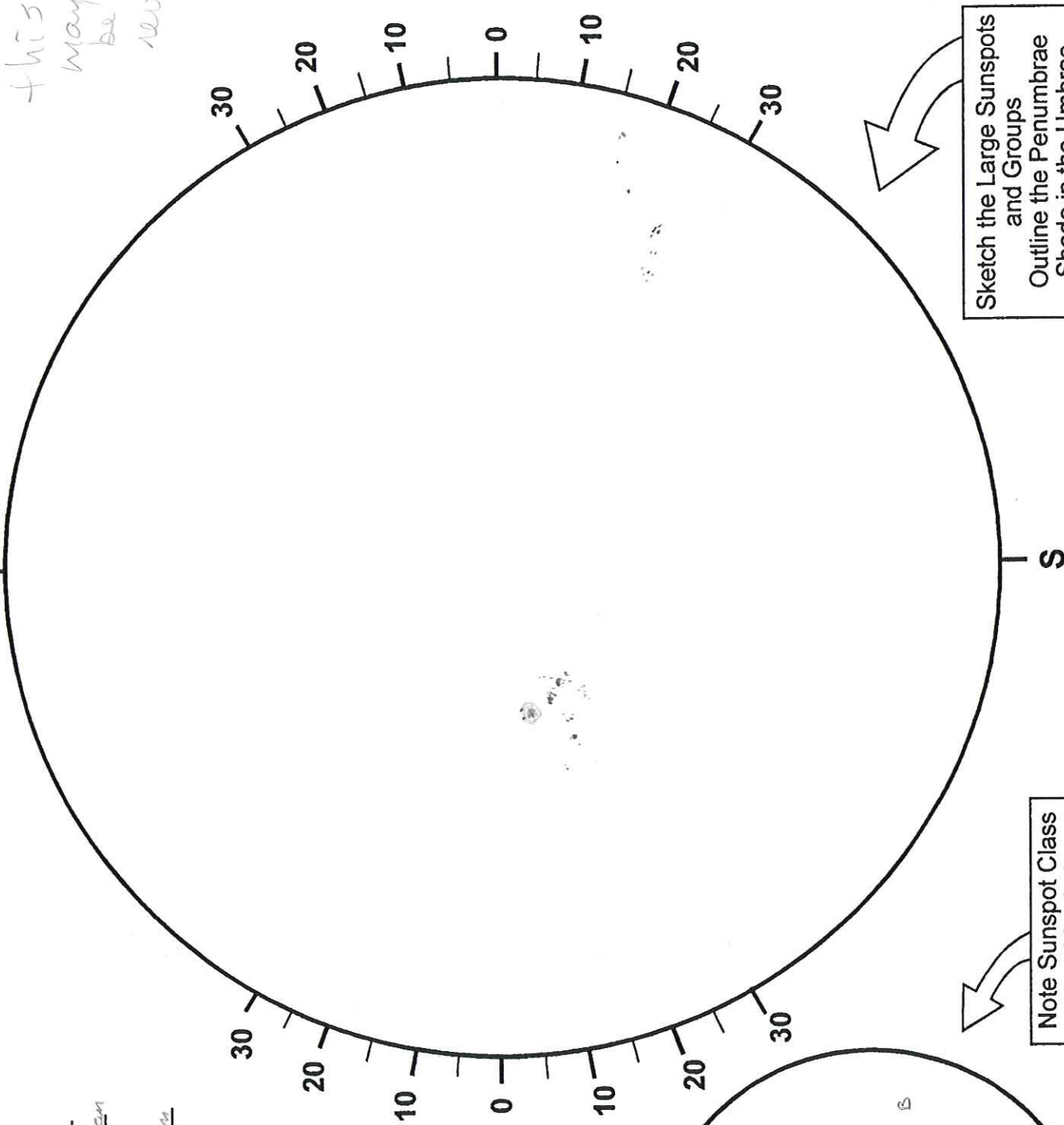
Seeing: Good Clouds: Clear Wind: Calm
 Telescope: Reflector Type: Newtonian
 Aperture Used: 8"
 Focal Length: 818 Eyepiece: 18 mm
 Filter: Reader

Observations:
 Direct or Projected (circle one)

Total Sunspot Count:
 (N=north of solar equator, S=south)
 Groups: N 0 + S 3 = 3
 Spots: N 0 + S 48 = 48

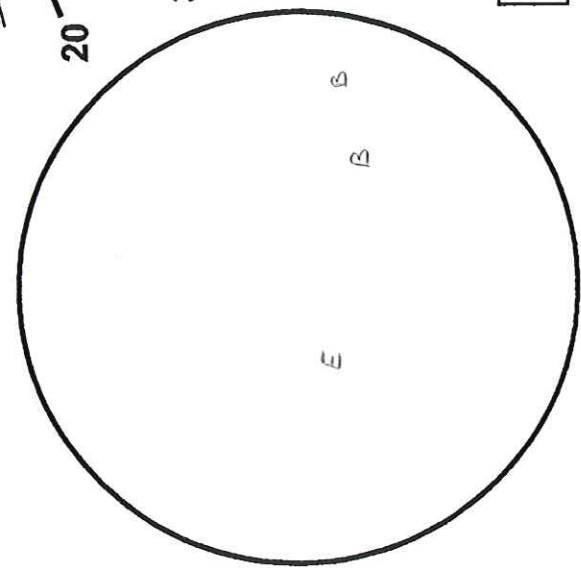
Wolf Sunspot Number (R):
 $R = 10G + S = 78$

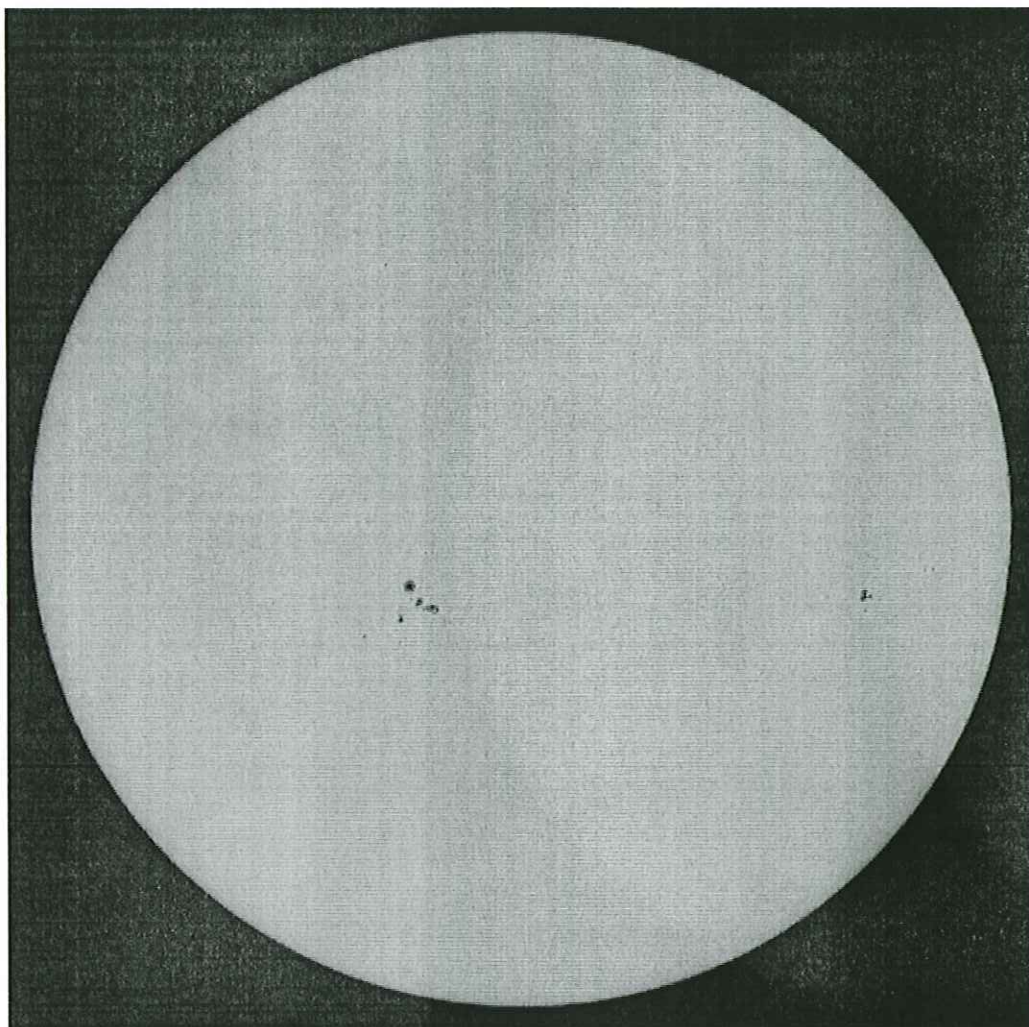
this may be reversed



Sketch the Large Sunspots and Groups
 Outline the Penumbrae
 Shade in the Umbrae

Note Sunspot Class on this circle





Observer: Mike Hatcher

Location: Bloomfield, CO MDT

Date/Time 3/8/04 7:54.4 (UT)

Sky:

Seeing Bad Clouds Heavy Wind Calm

Telescope Reflector Type Newtsonian

Aperture Used 8"

Focal Length F/4 Eyepiece 19 mm

Filter Barlow

Observations:

Direct or Projected (circle one)

Total Sunspot Count:

(N=north of solar equator, S=south)

Groups: N + S =

Spots: N + S =

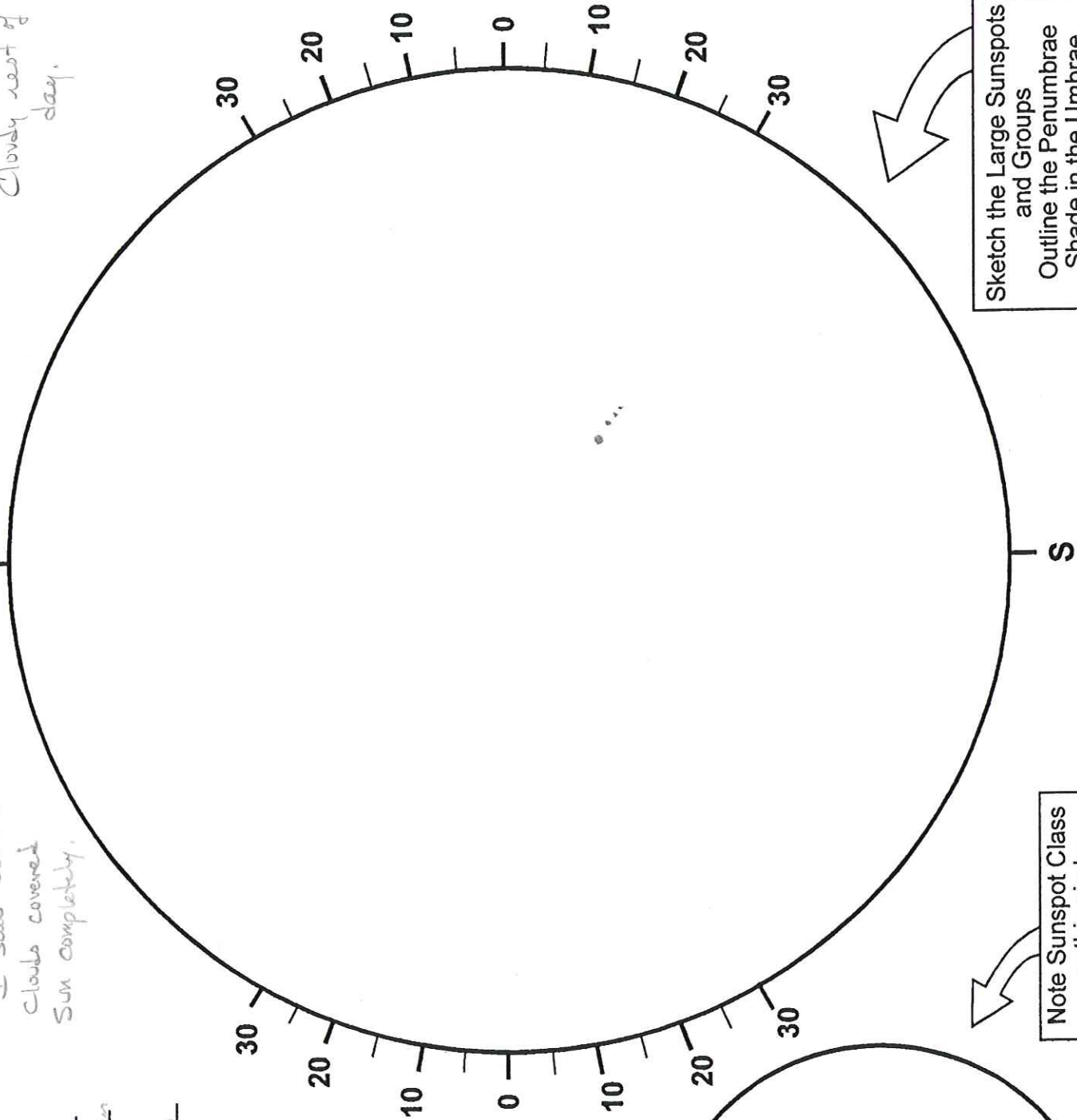
Wolf Sunspot Number (R):

$R = 10G + S =$

SOLAR DISK DRAWING

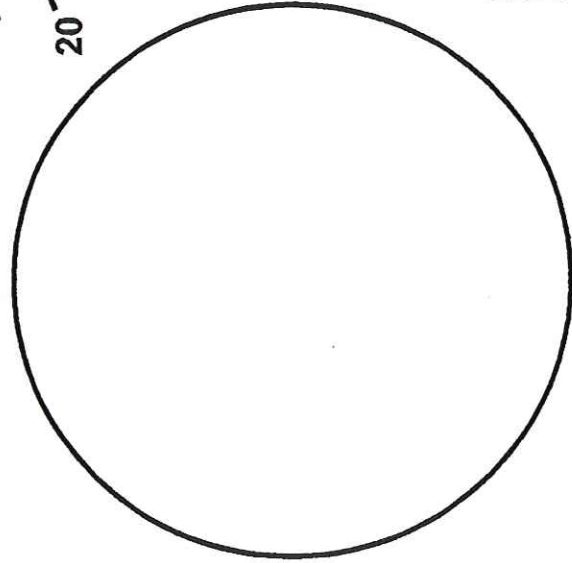
Cloudy rest of the day.

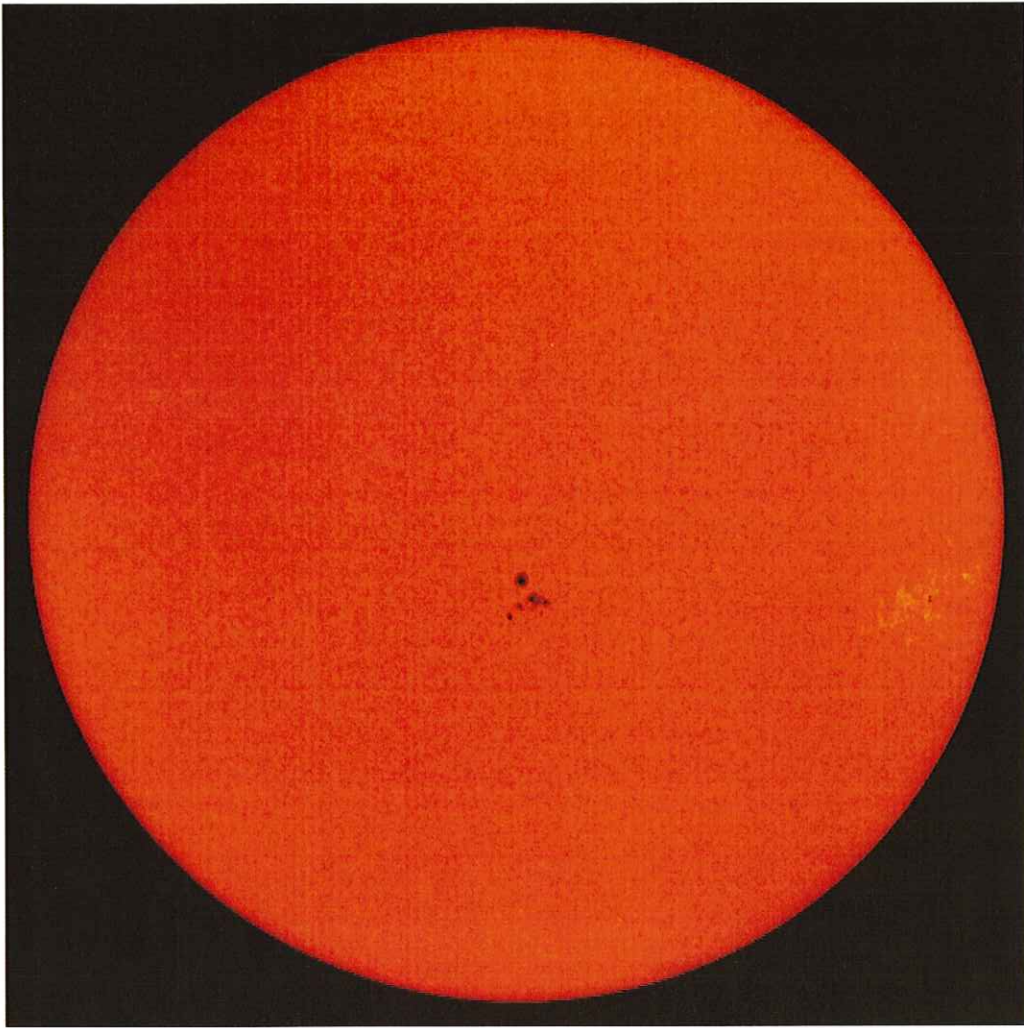
This is all I saw before clouds covered Sun completely.



Sketch the Large Sunspots and Groups
Outline the Penumbrae
Shade in the Umbrae

Note Sunspot Class on this circle





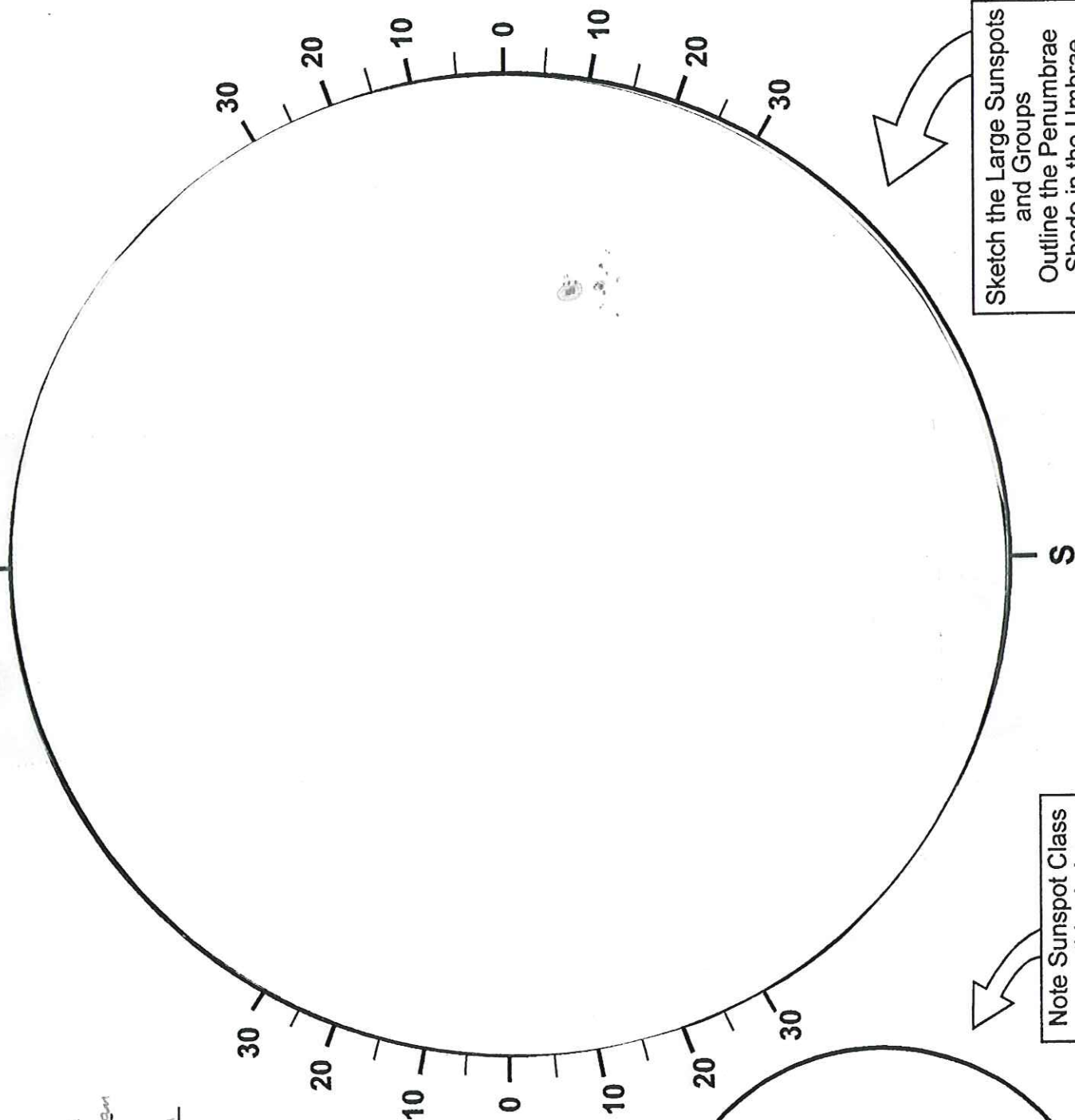
SOLAR DISK DRAWING

Observer: Mike Weller
 Location: Brownfield, CO MOT
 Date/Time 4/10/04 4:02P (UT)
 Sky: Cloudy
 Seeing OK Clouds W/hold Wind Calm
 Telescope Reflector Type Newtonian
 Aperture Used 8"
 Focal Length 218 Eyepiece 19mm
 Filter Reader

Observations:
 Direct or Projected (circle one)

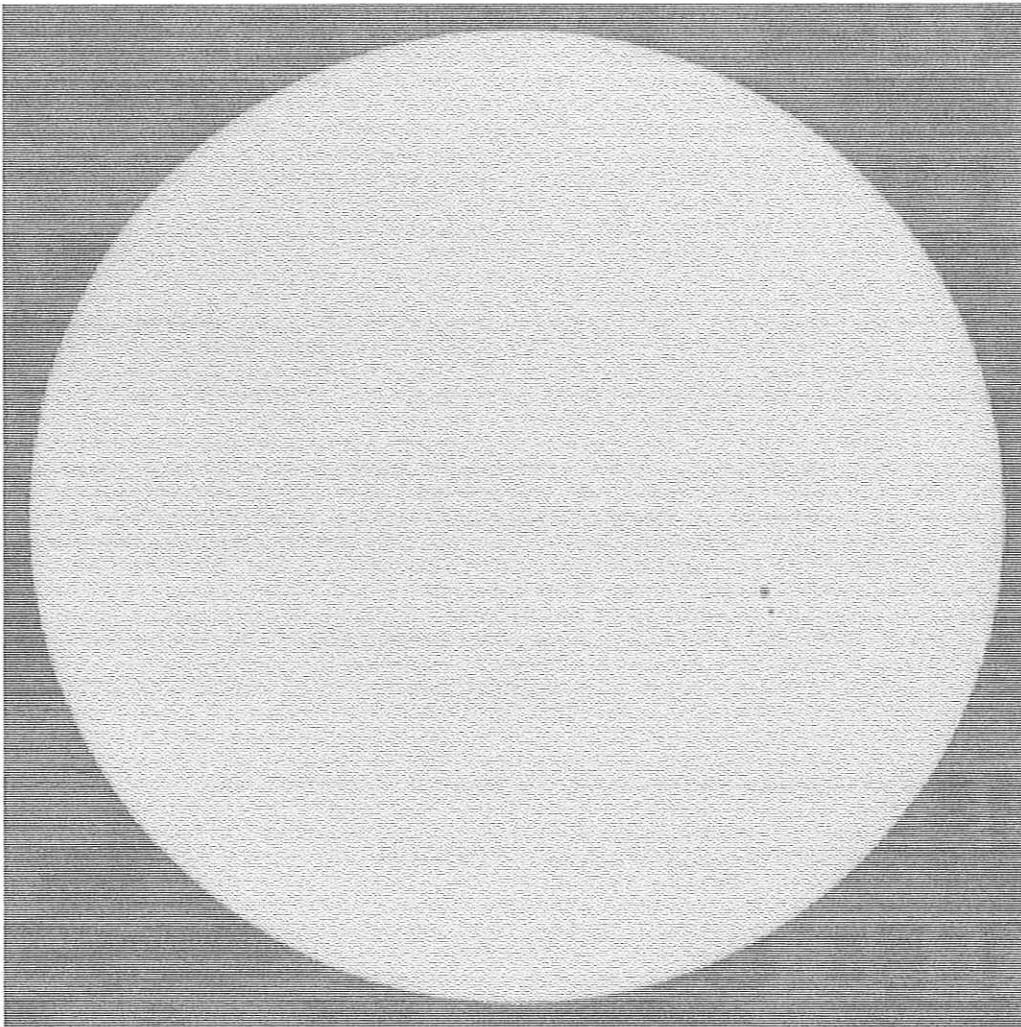
Total Sunspot Count:
 (N=north of solar equator, S=south)
 Groups: N 0 + S 1 = 1
 Spots: N 0 + S 20 = 20

Wolf Sunspot Number (R):
 $R = 10G + S = 30$



Sketch the Large Sunspots and Groups
 Outline the Penumbrae
 Shade in the Umbrae

Note Sunspot Class on this circle



SOLAR DISK DRAWING

Observer: Mike Hottel
 Location: Birmingham, AL MDT
 Date/Time: 4/11/04 11:17 AM (UT)
 Sky: _____
 Seeing Good Clouds Clear Wind Calm
 Telescope Reflector _____ Type Newtsonian
 Aperture Used 8"
 Focal Length f/8 Eyepiece 19 mm
 Filter Barlow

Observations:
Direct or Projected (circle one)

Total Sunspot Count:

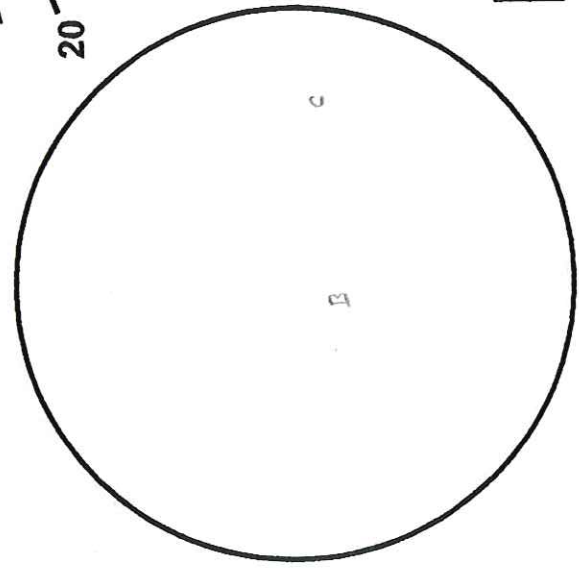
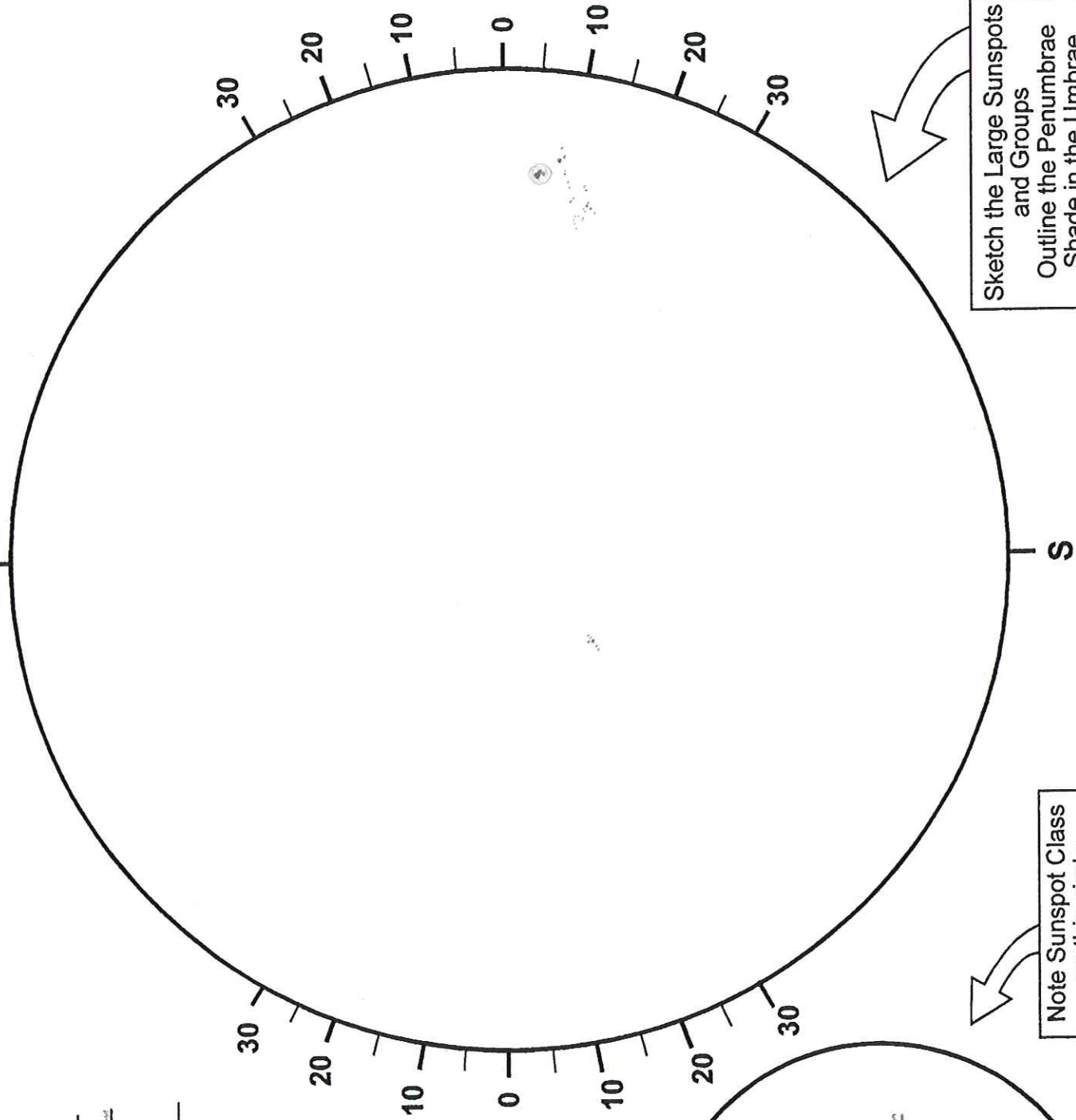
(N=north of solar equator, S=south)

Groups: N 0 +S 2 = 2

Spots: N 0 +S 31 = 31

Wolf Sunspot Number (R):

$R = 10G + S =$ 51



Note Sunspot Class on this circle

