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Lunar Eclipse 16 May 2003

ROBERT B. SLOBINS

Because of weather forecasts of a storm that was slowly moving out of the Midwest, I chose to drive northwest to Wisconsin to observe this eclipse. After observing cloud patterns and calling aviation weather service, I stationed myself between Milwaukee and Madison. As the sun set, the clouds dissipated and I drove around the countryside, finally settling for a parking lot for hunters at a state nature preserve near Sullivan, Wisconsin.

The sky was clear for the entire eclipse. Toward the end of the umbral phase, radiational cooling set in. Not only did the temperature drop rapidly after 0430 UTC, but dew started to coat my equipment and ground fog was forming.

The eclipse's penumbral phase began at moonrise, so I attempted to see and photograph the penumbra as soon as the moon cleared the trees. Then I began to set up the telescope and lens assembly. After the first umbral contact, I began photography.

At 0140 UTC, I first saw the 'dirty' smudge on the lower part of the moon. The penumbral band had a neutral to yellow color. It covered one-third of the moon's disk.

At 0227, the moon was a third of the way into the umbra. The penumbral band covered another 40% of the lunar disk and was neutral in color. The umbra was very bright. It had a deep red glow and I was able to see many of the major lunar features both naked eye and with optical aid.

During this inbound partial phase, I could not see any unusual markings or colors on the umbral band. This band covered about 1 lunar diameter at most and had a smooth and regular edge. I saw no projections of light into the umbra.

At second contact, I was surprised at the darkness of the umbra. The light rapidly fell in intensity the nearer to the center of the umbra. The magnitude of the moon was -4, compared to Jupiter's -2 and bright stars like Spica and Regulus. The outer edge was light and neutral. The contrast within the umbra was very sharp.

At mid-eclipse, the moon was equal to Jupiter in brightness: -2. It was very gray and colorless, reminding me of the eclipse of December 1992. This gray, or gray-blue color is due to the fact that the

light was too dim for my eye to register a color, although 12-second exposures on ISO400 film showed the color as red. This appearance persisted until fifteen minutes before third contact.

It was difficult for me to guide on lunar features at 150X; it was just too dark, so I just let the clock drive guide the piggy-backed camera and lens without my corrections. I therefore place the Danjon number L at 1 with the naked eye.

With fifteen minutes before third contact, the moon started to pass through a brighter region of the umbra. I was able to see copper-red, orange, and yellow near the edge of the umbra; the eclipse was getting colorful. For this part of the eclipse, L = 2.

After third contact, I noted extensions of the lunar 'crescent' into the umbra. The portion of the moon remaining in the umbra showed an obvious red glow with features clearly visible within.

Because the moon passed close to the umbra's edge, I expected a rather bright eclipse. Instead, there was a play of light on the lunar surface. The contrast between the edge and center of the umbra was striking; indeed, my images show a five- to six-stop difference in light intensity. Also, the darkest portion of the umbra was offset northeast of the center.

I suspect that there was a strong difference between the transparencies of the sunset and sunrise terminators on Earth and that this difference was caused by the weather. The beginning of the eclipse saw light passing through the skies of the western United States and western and northern Canada. There was considerable cloudiness over these regions. The sunrise terminator was over the Eastern Atlantic. Judging from the reports from the UK and Europe, the weather was good there with less cloudiness than over North America.

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Phototake

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Equipment used: Nikon F2 body and Tamron 400/4 lens at f/8 or f/9.5 attached to a driven 8-inch SCT.

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2003-800-09: 0328 UTC Film: Fuji Provia F-400 (ISO 400); Exposure: 4 seconds. This matches totality as seen through the lens or 7X50 binoculars.



2003-800-10: 0329 UTC Film: Fuji Provia F-400 (ISO 400); Exposure: 2 seconds. This matches the naked eye appearance of totality.



2003-901-03: 0352 UTC Film: Fuji NPH (ISO 400); Exposure: 8 seconds.



2003-901-04: 0352 UTC Film: Fuji NPH (ISO 400); Exposure: 4 seconds. This is close to the naked-eye appearance of totality at this time.