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Total solar eclipse of March 29, 2006

ROBERT B. SLOBINS

I placed myself at the beach of the Sural Saray Hotel in Colakli, Turkey early in the morning, as chasing the centre line was not a good investment of time. My concerns were to be in a position so that second and third contacts were opposite each other. We did have very transparent skies with some scattered high thin clouds. I got a lot more from this eclipse than I expected. I got my best spectra ever and have been busy analysing the lines. I have identified at least 50, not bad considering the lack of scale and low dispersion of the grating. To do the flash spectrum properly, one needs something like a 1500 mm lens and grating and a film (or chip) capable of extremely high resolution. That is how it was done in 1905. I have a copy of Ap. J. of 12/1913 with Mitchell's article. It is interesting to note that Mitchell took eight years to publish his results; I am trying to do the same in eight days, as you publishing and editing types have these deadlines.... ;-)

What was surprising about this eclipse was the clarity of the sky. Monday and Tuesday were generally perfectly clear with dazzling sunshine. When the cirrus clouds started to cross the sky on Wednesday, it turned out that they were of no consequence, even if they produced a 22-degree halo two minutes before totality. Therefore, what I would expect of a four or even eight-second exposure of the corona at ISO 400 was produced at ISO 200 with one second. I am sure that this is what contributed to the good definition of the spectra.

Coronal spectra—one second exposures (centre); other camera, and settings the same as for the flash spectra (above). The images below are of the third contact flash spectrum, overexposed but show the violet end of the spectrum very well. Note the 5303 coronal line of Fe XIV and hints of the 6374 line of Fe X. To get these lines, which lie close to the chromosphere especially at solar minimum, I waited until the last minute of totality because of the apparent large size of the moon relative to the sun. Camera: Canon AE-1 with motor drive (2fps), Tamron 80-200/2.8 lens at 150 mm, f/4, 1/60 second, Fuji 160S film, B+W diffraction grating. These images were scanned to high contrast, so as to reveal not only the arcs of the chromospheric spectrum, but also some of the dark lines in the remaining continuous spectrum.

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Photos prises à Hacibektaş (prononcé «Hadjibektash») sur la ligne de centralité, en Turquie.

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