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complete series of photographs was obtained here during its transit. Of these a number for position merely were taken at the focus of the 12 inch equatorial; 49 were secured with the new "spectro-heliograph", and these give a faithful history of the faculae as well as of the spots. A photograph was also taken of the eruption over the spot as it entered on the eastern limb on Feb. 4. I hope to be able to send you copies of some of these plates soon, but cannot just at present because the image of the Sun given by the spectro-heliograph is elliptical - flattened in the plane of dispersion - and I have not yet procured a suitable cylindrical lens to give a round image of the Sun in copying the originals. Of course you would not care for distorted images, and I wish to remove this defect

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before sending any out.

I take pleasure in mailing you herewith a photograph of the spectro-heliograph, and also one of the spectro-scope as it appeared before the new apparatus was attached. The spectro-heliograph consists in principle of two moving slits, one replacing the ordinary slit of the spectro-scope, and the other at the focus of the observing-telescope. A modified form of Cleveghra in connection with an hydraulic accumulator supplies the motive power. The grating (Rowland 4 inch) is rotated by the slow motion rod until the K line in the fourth order passes through the second slit. The slits then move together in such a way that the first passes across the Sun's image, while the K line constantly passes through the second. As K is bright in prominences, and

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also in faculae (discovered here the latter part of December, 1891), and the absorption is more marked in spots, it follows that all these phenomena will be obtained in the photographs. As a matter of fact, the best results for faculae are obtained with a shorter exposure than that sufficient to show the prominences, so it is usual to make two sets of photographs, one with narrow slit moving slowly for the prominences, and the other with more rapid motion for spots and faculae. The advantage of this apparatus lies in the fact that all prominences around the entire circumference of the Sun are shown on a single plate, while faculae are as well shown at the center ^{of the disc} as at the limb.

Very truly yours
George E. Hale