

**UNIVERSITY OF ARIZONA
ECLIPSE EXPEDITION**

Port Libertad, Mexico, Sept. 10, 192~~2~~3

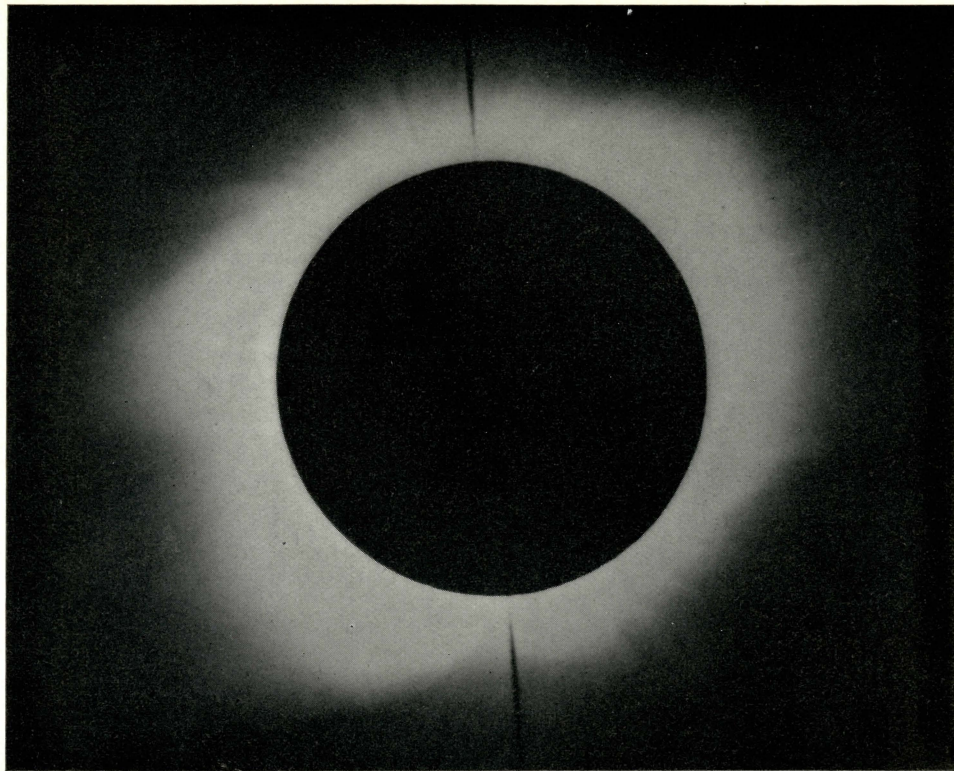
BY

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REPRINTED FROM POPULAR ASTRONOMY, VOL. XXXI, NO. 10,
DECEMBER, 1923.

PLATE XXXVIII.

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PHOTOGRAPH OF THE SOLAR CORONA, SEPTEMBER 10, 1923.

Taken by the University of Arizona Expedition at Port Libertad, Mexico.

The photograph is reversed east and west because it was taken with a mirror in front of the lens.

UNIVERSITY OF ARIZONA ECLIPSE EXPEDITION.

Port Libertad, Mexico, Sept. 10. 1923.

By A. E. DOUGLASS.

Port Libertad is on the east side of the Gulf of California, about 60 miles north of Tituron Island, approximately $29^{\circ} 55' N.$ and $7^h 30^m 44^s W.$ The University of Arizona Eclipse Expedition, which occupied a station there, was equipped with a 5-inch lens of 39 feet focus, a telephoto combination of three inches aperture and fifteen feet equivalent focus, a visual three-inch lens of 52 inches focus and a "crossed" lens (nonachromatic) of 46 feet focus. The five-inch lens was mounted in a stationary position near the ground with a mirror below it sending a horizontal beam. The motion of the image was taken up by a carriage moved by clock-work, carrying a fourteen by seventeen-inch plate. Two photographs were obtained with this camera, one of which, an exposure of 32 seconds, accompanies this article. The diameter of the moon's image in the original negative is four and five-eighths inches.

Exposures were obtained in the smaller instruments of one, four, sixteen, and sixty-four seconds and a fifth exposure showed the sun just reappearing. The Corona may be traced in detail to twice the diameter of the sun away from its limb. The prominences are shown in detail in the 39-foot and the 15-foot cameras.

The plan in early spring was to go to some point near Hermosillo on the railroad south of Tucson. There one could reach with great convenience the center line of totality. But in July the rainy season proved so persistent that it seemed wise to change the station to a less convenient locality over on the coast of the Gulf. This proved very fortunate for the sky was clear in the greater part, but heavy thunderstorms hung over the mountains to the east of us during much of our stay.

The Corona was of the expected sunspot minimum type and the polar rays show well but not so conspicuously as in some of the recent eclipses. Eight stars were counted by one of the members of the party in a rapid survey of the heavens. The red chromospheric ring was noted; there was also a falling of the wind and lowering of temperature.

The party consisted of eight persons besides the writer. Mr. Godfrey Sykes and his two sons managed the 46-foot telescope but, owing to delay in reaching the site (from bad roads) and some interference by

clouds on the day before the eclipse, it was impossible to make some of the final adjustments and the results were not satisfactory. The small instruments of 52 inches and 15 feet focus were mounted on a temporary polar axis with a guiding telescope and were managed by five men. The timing was done by Mr. D. A. Hawkins, the guiding by Mr. William Done, both students in the University. Mr. Philips Brooks, and Mr. Edwin Knagge changed the plate holders in the two photographic telescopes. Mr. Ed. Bayless made the exposures. The writer was stationed inside the shelter and handled the plates of the 39-foot telescope and only saw the eclipse as it appeared through the photographic film.

Equipment was taken along for photographing shadow-bands and for photographing other items of interest, but no one could be spared to do this work. Lack of sufficient help was one of the difficulties experienced in occupying a somewhat inaccessible locality.