

1902

Some Diffraction Photographs

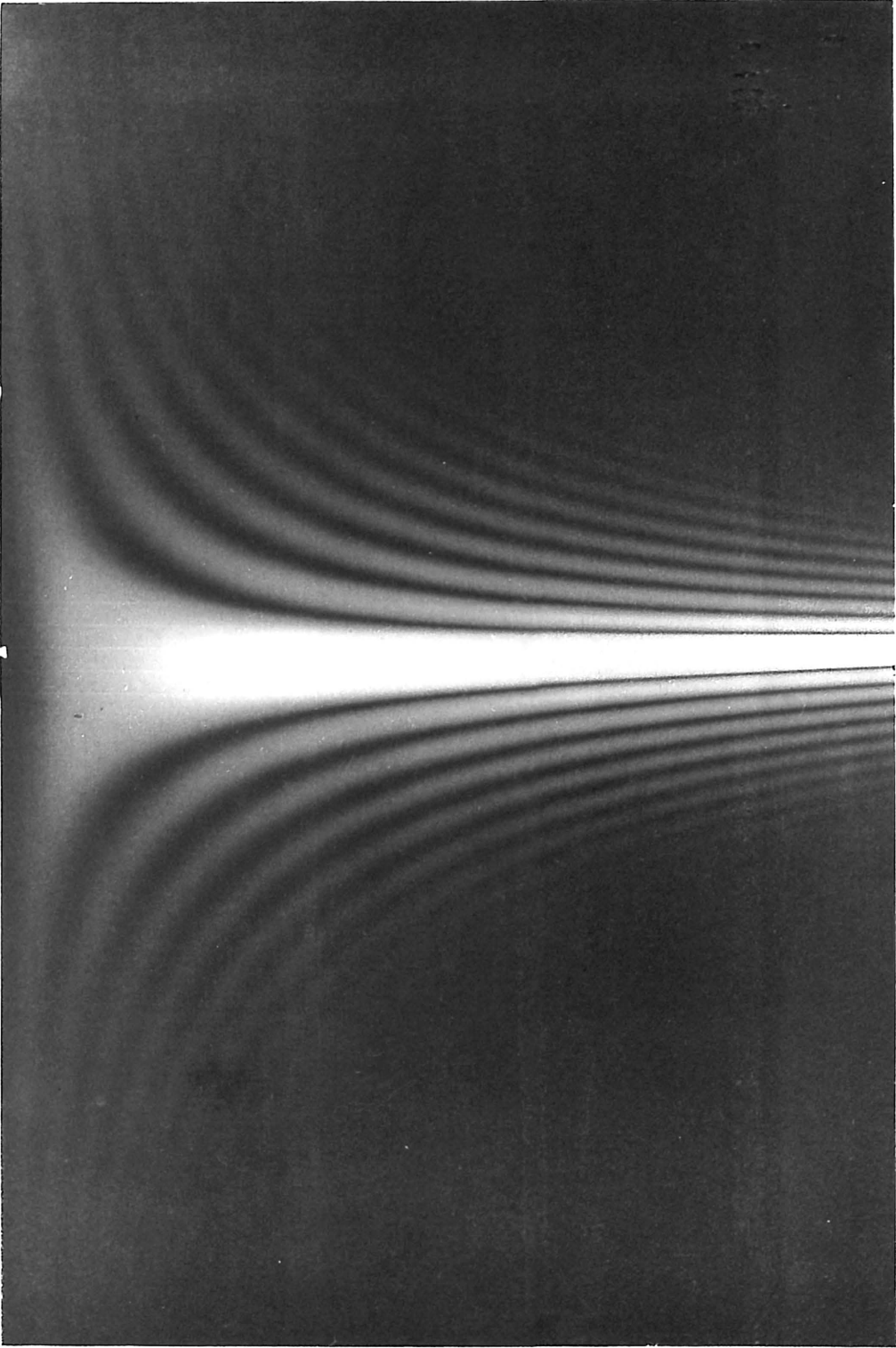
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FRANKLIN: DIFFRACTION PHOTOGRAPHS.

SOME DIFFRACTION PHOTOGRAPHS.

BY W. S. FRANKLIN.

THE accompanying plate is reproduced from one of a number of photographs of shadows cast upon photographic plates from a monochromatic point-source of light distant about sixteen meters from the plate. The objects casting the shadows were about three meters from the plate, and the photographic plate was in each case at right angles to the incident light.

Diffraction photographs were made in this way in the shadows of a number of different objects, with exposures ranging from twenty seconds to seven hours. Among the photographs obtained may be mentioned (1) the shadow of a broad straight-edged plate; (2) the shadow of a steel rod; (3) the shadow of five circular discs. These discs were suspended upon a network of fine wires, each 0.004 cm. in diameter. The shadows of the wires show in the photograph; (4) the shadow of a brass plate with several circular holes bored through it. These photographs, while well suited for lantern projection, are not sufficiently strong for reproduction.

Photograph No. 5, which is reproduced in the accompanying plate, is the shadow of a slit between very carefully worked straight edges of brass. The slit was about 15 centimeters in length, tapering from a width of 0.05 centimeter at the end *a*, to zero width at the end *b*. The original negative was 20 × 25 cm.

LEHIGH UNIVERSITY, SOUTH BETHLEHEM, PA., April, 1901.