Carnegie Institution of Washington

CONTRIBUTIONS FROM THE SOLAR OBSERVATORY
MT. WILSON, CALIFORNIA
NO. 3.

A PROGRAM OF SOLAR RESEARCH

BY
GEORGE E. HALE

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A PROGRAM OF SOLAR RESEARCH[1]

By GEORGE E. HALE

In an article on "Solar Research at the Yerkes Observatory"[2] I have given, in outline, a program of solar investigations prepared several years ago. Some of the investigations included in this program were carried out at the Yerkes Observatory, and others are still in progress there. As explained in another paper,[3] it was found that the solar spectrograph attached to the 40-inch telescope was of insufficient focal length for satisfactory photographic work on the spectra of sun-spots, and accordingly this work was postponed, and has recently been taken up at the Solar Observatory. For similar reasons it was found to be advantageous to delay other investigations until the completion of the Snow telescope. We are finally in a position, however, to attack the whole question seriously. I have therefore thought it might be of interest to publish the revised program of solar research which we are putting into operation on Mount Wilson.

In preparing this program, two principal purposes have been considered: (1) the study of the Sun as a typical star, with special reference to stellar evolution; (2) the study of the Sun as the central body of the solar system, with special reference to the relationship between solar and terrestrial phenomena.

The proposed investigations include:

I. DIRECT PHOTOGRAPHY

a) Daily photographs of the Sun on a scale of 6.7 inches (17 cm) to the diameter, for comparison with spectroheliograph plates.

b) Large-scale photographs of spots and other regions, for the study of details.

II. PHOTOGRAPHIC STUDIES OF THE SOLAR ATMOSPHERE WITH THE SPECTROHELIOGRAPH

a) Daily photographs of the Sun with the lines:

[1] *Contributions from the Solar Observatory*, No. 3.

[2] *Astrophysical Journal*, 16, 211, 1902.

[3] *Contributions from the Solar Observatory*, No. 5: "Photographic Observations of the Spectra of Sun-Spots."