Whipple, Fred L. and Hawkins, Gerald S. On meteors and rainfall.*

The suggestion by E. G. Bowen that heavy rainfall and noctilucent clouds are correlated with meteor streams is examined with regard to the known facts of meteor astronomy. Photographic and radar observations show that the background influx of sporadic meteors is not greatly enhanced by the occurrence of a meteor stream, and it is unlikely that meteors within the present limits of observation could produce a change in the numbers of freezing nuclei sufficient to cause heavy rainfall. Comprehensive measurements of daylight meteor streams are cited which show no detailed correlation with the observations of noctilucent clouds—the meteoric debris suspended in the upper atmosphere. This again indicates that the debris contributed by observed meteor streams is insignificant. The role of micrometeorites that enter the atmosphere without producing detectable light or ionization is considered. It is possible that a profusion of micrometeorites in a relatively new stream could affect the rainfall. But in space these particles must be removed from the streams before they are dispersed into sporadic orbits; otherwise the streams would not be so conspicuous against the sporadic background. A mechanism for removal is suggested which depends on the gradual disintegration of micrometeorites under the influence of corpuscular radiation from the sun.

Thus we find that the meteor-rainfall theory is difficult, but not impossible, to integrate with our present knowledge of interplanetary particles.

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Zirin, Harold. High dispersion spectra of prominence and coronal emission lines.*

A number of high dispersion spectra of prominence and coronal emission lines have been obtained with the new coronagraph of the UARO. The prominence spectra, showing lines of $H\alpha$, $H\beta$, and D_3 , exhibit pure Gaussian profiles, corresponding to temperatures ranging from $10,000^\circ$ to $50,000^\circ$, with most of the prominences in moderately active green coronal regions exhibiting temperatures around $25,000^\circ$. This confirms earlier results obtained by Billings and Zirin (1955) with lower dispersion.

Spectra obtained of the green coronal line $\lambda 5303$ show minor irregularities which might be attributed to small scale macroscopic motions. The temperatures obtained by assuming the profile of the coronal line to be produced by pure Doppler broadening range from 1.5×10^6 for fainter coronal emission to $3^\circ \times 10^6$ for bright peaks.

Billings, D. E. and Zirin, H. 1955, *A. J.* 60, 155.

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TITLES OF ADDITIONAL PAPERS PRESENTED AT THE MEETING IN TROY, N. Y.

- Symposium: The solar chromosphere and prominences.
Evans, John W. Eclipse and coronagraphic studies.
Hagen, John P. Radio studies.
Mohler, Orren C. Spectrographic studies.
Thomas, Richard N. Physical interpretation.
Bartlett, Thomas J. The shadow of the moon over Denver during the solar eclipse of June 30, 1954.
Cook, Allan F., II. The drag coefficient for meteors.
Cooley, Thelma A. Photoelectric recordings of occultations from 1949 to 1952.
Duncombe, Raynor L. The motion of Venus 1750-1949.
Hosfeld, Roger. A two-tube photometer for sequential solar-stellar observations.
Kaplan, Joseph. The international geophysical year (invited paper).
McCrosky, Richard E. Luminosity of the meteor wake as a measure of the number and sizes of fragmented particles.
Müller, Edith A. Three-color photometry of the open clusters NGC7510, NGC654 and of a star chain near NGC663.
Spiegel, Edward A. The smoothing of temperature fluctuations by radiation.
Weaver, Harold. The galactocentric angular velocity and corrections to the precession constants.
Whipple, Fred L. The satellite program (invited paper).
Wyller, Arne A. Vibrational temperatures of some carbon stars.