visual magnitude, which is cut down five magnitudes by a wire gauze screen; at the longer distance a 2.5-mag. screen equalizes the intensity. Thus the real stars and the artificial star are observed under the same optical conditions, and the corrections for atmospheric extinction have been satisfactorily determined. The horizontal extinction at 1100 feet on Mount Hamilton is practically nil for wave lengths 4200 Å and longer. The final values of stellar temperatures will depend upon the calibration of the photocell and filters now being completed in the laboratory.

Other results include a new group of light-curves for the variable star, η Aquilae. The so-called "hump" or pause in the continuous variation of the star is present in all colors. In the period of seven days the range is 1.5 mag. in the ultraviolet and 0.4 mag. in the infra-red. The same retardation of phase for longer wave lengths is found as for δ Cephei.

Six-color curves for Algol are also nearly complete.

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Thomas, Richard N. · On the reduction of eclipse observations of the Balmer decrement.

At a previous meeting of the Society a method of using the observed Balmer decrement in the hydrogen flash-spectrum to determine the gradient of kinetic temperature and electron density was presented. A knowledge of the kinetic temperature was required from some other kind of observation. The method has been extended so that the kinetic temperature also may be obtained from the flash-spectrum observations of the Balmer decrement. The 1932 eclipse gives a value for the kinetic temperature at about the 1000 km level of some $2.5 \cdot 10^4$ °K. The value obtained by Redman from the line profiles was some $3.5 \cdot 10^4$. Since the present data indicate an uncertainty in the above determination of some 25 per cent, the agreement with Redman's measures seems satisfactory. The method of interpretation of the flash-spectrum to obtain the thermodynamic structure of the chromosphere would then seem to be finally understood. One notes three methods that have been used: a comparison of the heights of disappearance of the hydrogen lines; a consideration of the apparent change in luminosity of a given line with height; and the present method of investigation of the self-absorption effects. Heretofore it has been assumed that either of the former two

methods might be used, with equivalent results. It now seems that the three methods should be expected to yield different results; and the direction of the expected difference is in accord with the observations. The present extension of the last method depends upon a combination of the last two methods, after introducing a correction for self-absorption into the second method. The effect of departures from thermodynamic equilibrium upon the results is then shown to be very small.

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von Weizsäcker, C. F. Turbulence in the Pleiades nebula.

It is assumed that the B stars of the Pleiades cluster have accumulated matter from the nebula. The angular momentum of their rotation would be derived from internal motions in the nebula. According to the theory of turbulence the smallest eddies should be somewhat smaller than 10^{16} cm, the precise value depending on the viscosity and thereby on the ionization of the gas. The smallest visible filaments with diameter about 10^{16} cm may be kinematic structures of the gas, made visible by density variations of the dust. By a rough estimate the time scale of the accretion of gaseous matter by the B stars is found to be about $10^{8 \pm 1}$ years.

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Watts, C. B. and A. N. Adams. Photographic and photoelectric technique for mapping the marginal zone of the moon.

In order to derive an improved system of corrections for astrometric observations involving the limb of the moon, a new survey of the marginal zone is being made at the Naval Observatory. Photographs of the moon made at Washington and at the Yale-Columbia Southern Station, Johannesburg, are measured in polar coordinates with a servo-operated micrometer which constructs a large scale profile representing the irregularities of the limb.

When undergoing measurement a photograph is approximately centered on a vertical spindle rotated by a motor in either direction at the rate of three degrees per minute. The micrometer microscope, pointed downward at the plate, is moved radially by a motor connected with the micrometer screw. By simple mechanical means the angular motion of the screw is represented by the linear motion of a recording pen.