ond or two per orbital period in about eight weeks on the average, if spin-axis orientations were constant. However, meanwhile, magnetic torques normal to the spin-axis of the satellite, due to its revolutionary motion around the geomagnetic field, would produce increasing precession and nutation of the axis leading, at the final decreased spin rate, to approximate alignment of the geometrical axis perpendicular to the ambient magnetic field around the orbit. Also, at this final stage of magnetic alignment, the differential gravitational torque would draw the geometrical axis of each cylinder toward the current vertical. Similar theoretical conclusions as to magnetic alignment of elongated paramagnetic particles have previously been reached (Davis and Greenstein, *Astrophys. J.* 114, 206, 1951) for explaining observed polarization of optical stellar radiation passing through interstellar dust clouds. Thus the cylindrical particles to be dispersed around the earth in Project West Ford will constitute an artificial dust cloud for which alignment and polarization theories may be controlled by comparison of effects to be expected from the known properties of the particles with observed polarization of appropriate wave bands of extraterrestrial radiation passing through the artificial cloud.

Structure of the K Line during Ingress in the 1961 Eclipse of 31 Cygni. K. O. WRIGHT AND G. J. ODGERS, *Dominion Astrophysical Observatory*.—The study of the K line due to the chromospheric eclipse of the smaller B star by the outer atmosphere of the giant K star furnishes detailed information regarding mass motions and the field of turbulent velocities in a stellar atmosphere difficult to obtain in any other way.

High dispersion (3.6 Å/mm) spectrograms have been obtained at Victoria on 36 nights during the present eclipse. Separate components were first observed on July 26 corresponding to two stellar diameters distance from the K-star photosphere of the projected disk of the B star. Velocity separations of

100 km/sec have been observed and both the position and strength of the component lines varied greatly from night to night. Remarkable variations occurred in the strength of the principal line; in particular on September 25 and during the first half of October the line became much weaker than previously observed. The K-line profiles were found throughout the eclipse; also determined were equivalent widths and the velocity displacements of the component lines. It is found that K-line velocities are predominantly negative during ingress with respect to the orbital velocity and often equal or surpass the escape velocity from the star.

By comparing the curve of equivalent width against time up to December 18 with that obtained during the 1951 eclipse the date of total eclipse was predicted as December 24.5 about a week later than Petrie and McKellar's most probable period of 3781 ± 8 days; the period would now appear to be 3787 days.

The rapid variations in the strength of the K line and the appearance and disappearance of component lines confirms the conclusions obtained during the 1951 eclipse that the outer atmosphere of the giant K star is composed of large discrete clouds of gas moving with high velocities.

Another Model of the Coronal Ionization Equilibrium. H. ZIRIN, *High Altitude Observatory*.—B. Edlen has recently identified resonance lines of FeXV and XVI in the uv solar spectrum. The fact that these lines are much stronger than the FeXIV permitted lines at 260 and 340 Å indicates that the abundance of FeXV and FeXVI is substantial, much greater than might be inferred from the intensity of the FeXV coronal line at 7060 Å. Reconsideration of excitation of the upper level of the latter line shows that it can be de-excited by radiative transitions not involving the emission of 7060.

Using these data, an attempt is made to reconcile the discrepancy between the coronal temperature as deduced from the ionization equilibrium and linewidths.