All four bursts were associated with depletions in the electron content of the white light corona. A fifth event, for which white light observations were unavailable occurred behind the west limb. We show that the type IV bursts associated with the event must have propagated along a curved path following the magnetic field lines, in a manner analogous to the March 30, 1969 event described by Smerd (1970 Proc. ASA 1, 305). Characteristics of the bursts are not unique, i.e., they differ in source size, structure, duration and their association with other radio bursts. Following Smerd and Dulk (1971 Solar Magnetic Fields - Proc. of IAU Symp. 43, p. 616) we believe that a shock wave, moving out from the flare site is responsible for the expansion of a magnetic arch or the ejection of a plasma which is observed as the usual type IV burst. Behind the shock wave, the compressed coronal gas moves outward, and as it expands it causes a depletion of electrons in the inner corona. After the passage of the shock wave, sometimes the coronal magnetic field structure is restored to its initial situation, as evidenced by the observations of homologous transients.

08.02.03 Long Base Line Interferometry of the Sun at 3.7 and 11.1 cm Wavelengths, M. R. KUNDU, C. ALISSAMBRAKIS & R. H. BECKER, U. of Md. - The 3-element interferometer of the National Radio Astronomy Observatory was used at 3.7 and 11.1 cm wavelengths to synthesize maps of solar active regions. The synthesized cleaned beams at 3.7 and 11.1 cm are Gaussian in shape of dimensions 3" x 3" and 9" x 9" respectively. The synthesized maps usually exhibit several distinct peaks. The maps imply that the active regions contain bright points or cores along with diffuse regions or halos. The brightness temperatures of the strongest components are about 10^6 K at 3.7 cm and 10^7 K at 11.1 cm respectively. Several flare-associated bursts were observed. Comparing the fringe amplitudes to the visibility computed for model flare regions, we find that at the time of the flare peak, the bursts have small angular sizes of the order of 2° arc. The resulting peak brightness temperatures are about 10^7 K at 3.7 cm and 10^8 K at 11.1 cm. Such high temperatures would imply that a significant fraction of the burst radiation has a non-thermal origin. Observations have also been made with the NRAO 4-element interferometer having angular resolutions of 0.22 and 0.26 at 3.7 and 11.1 cm wavelengths.

08.03.03 The Eruptive Prominence of August 21, 1975 Observed from Skylab in the White Light Corona and in the He II 304Å Chromosphere, A. I. Poludn, High Alt. Obs. (National Center for Atmos. Res.). - The eruption of a prominence from the East limb of the sun was simultaneously observed with time lapse sequences of He II 304Å spectroheliograms and white light coronal photographs. The spectroheliograms show the prominence in various stages of eruption including a stage in which it extends beyond one solar radius from the sun's surface into the coronagraph’s field of view. The photographs show some of the prominence structure as observed in the spectroheliograms and a much larger associated coronal disturbance. The disturbance was observed to move outward to six solar radii, the limit of the field of view, with a velocity of several hundred km s^-1.

08.04.03 Theoretical Helium I Emission Line Intensities for Quiescent Prominences, J. N. HEASY, DIMITRI MHALAS & A. I. POLUDN, High Altitude Observatory, National Center for Atmospheric Research. - Self-consistent solutions of the combined statistical equilibrium and transfer equations have been carried out for a rather complete multi-level, multi-ion model helium atom in model quiescent prominences. The excitation and ionization of both He I and He II were considered simultaneously, and detailed calculations of the radiative transfer in the resonance lines and ground-state continua of both these ions were made, allowing for the effects of overlapping hydrogen transitions. A large number of excited states have been included in the computation, so that a fairly comprehensive set of predicted subordinate line intensities are now available for comparison with observation. A preliminary comparison of the predicted values with published singlet/triplet ratio observations shows good agreement for all the pairs of lines considered.

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08.05.03 The Acceleration and Magnetic Fields of Sunspots, J. M. Malville, Univ. of Colorado and E. V. Tandberg-Hanssen, High Altitude Observatory, National Center for Atmospheric Research. - The 1-Haalpha magnetograph monitors the wavelength of the line throughout the period of each magnetic observation, allowing measurement of small changes in velocity of emission features of limb prominences. In our investigation of two surge events, August 16, 1970 and May 26, 1971, we find the following characteristics of accelerated motions in sunspots: (a) The number of acceleration is correlated with the direction of the magnetic field - an increasing blue shift generally corresponds to a field of negative polarity; (b) the magnitude of the acceleration increases with the magnitude of the associated field - the largest accelerations (5000 cm/sec) occurred in regions of strongest field; (c) the acceleration is approximately equal to 8L/4Ell, where L is the scale of the field and N is the number density of the ionized component of the field, for which we estimate L = 10^16 cm and N = 3 x 10^12 cm^-3.

08.06.06 A Non-L.T.E. Analysis of the Solar Mg I Spectrum. R. C. ALTROCK and R. C. CANFIELD, Sacramento Peak Observatory, AFCLR. - A number of recent solar atmospheric studies (Cf. R. C. Altrock and C. J. Cannon, Solar Phys. 26, 21, 1972) utilizing the 4571 Å line of Mg I have assumed that this line has an L.T.E. source function. While this assumption has been justified in an approximate way and utilized in previous work (e.g., R. G. Athay and R. C. Canfield, Ap. J. 156, 695, 1969), it has never been checked by a detailed non-L.T.E. analysis of the Mg I spectrum. To provide such a check we have made calculations for a four-level Mg I atom which includes the lines at 4571, 5172 and 2852 Å. We utilized recent experimental and theoretical values of atomic parameters, as well as estimates of their uncertainties. In particular, we allowed the radiative transition rate for 4571 Å to vary from 200 to 600 s^-1, which is a measure of the current uncertainty. Our first conclusion is that the source function for 4571 Å is within approximately 1% of the L.T.E. value at all heights at and below the temperature minimum. This implies errors of less than approx-

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