and many weak or incipiently resolved features, appear in the spectrum. Detailed densitometry of the region from 1946 Å to 1963 Å has been completed, the most distinct absorption lines arise from Fe I and S I; the ratio of the first four lines of Si I (1960.901 Å), a G line (1955.14 Å) and a number of VI lines (multiplets 54 and 55) have been identified among the weaker lines. Numerous emission lines are at wavelengths below 1946 Å.

Further identifications and quantitative interpretation of emission and absorption line profiles await the completion of the data reduction process now underway.

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Analysis of High Velocity Flare-Spray.

Analysis of High Velocity Flare-Spray.

Marie Mccart, University of Hawaii. - Observations were obtained with the 24-inch coronagraph at Haleakula Observatory of a flare prominence at the west limb on March 12, 1969. Material was visible also at a distance greater than 1 solar radius above the limb, and the accompanying type II and type IV radio events show burst positions to 3 solar radii.

It was possible to trace many trajectories of the moving prominence fragments and so determine velocities in the plane of the sky. At any particular instant the outward velocity is a function of height, while some fragments reached velocities of 1000 km/sec before disappearing.

Examination of Hα disk photographs in conjunction with the prominence data reveals a rather complex event consisting of a large flare near the limb and at least three prominence features with either spray or eruptive characteristics. The type II burst is interpreted as a multiple shock event.

Comments on X-Ray Burst - Hz Flare Relationships.

R. W. Milkey, N. K. Blocker, W. H. Chambers, P. E. Pehlau, J. C. Fuller, and S. E. Kinzi, Los Alamos Scientific Laboratory. - We have examined the correlation between Hz flares and x-ray enhancements for 500 confirmed Hz flares reported in Solar Geophysical Data as occurring in July 1969. The x-ray data were taken from the two Vela Launch V satellites and include 2-12 and 1-6 keV fluxes derived from ion chambers and five scintillator energy channels ranging from 5 to 45 keV. X-ray enhancements were observed for 94% of the flares, with the enhancement above background usually greatest in the 5.5 to 7.7 keV and 7.7 to 14.7 keV channels and lesser in the 1-6 and 2-12 keV bands; this is due to the greater quiet sun emission at the lower energies.

All of the 12 flares for which no x-ray enhancements were observed were classified as subflares; it is possible that these small flares merely produced x-ray enhancements below the limit of detectability. Another circumstance under which we might miss an x-ray enhancement even though Vela observed was the occurrence of a short duration enhancement while the satellite was operating in the stored data mode. X-ray data obtained from memory readsouts have significantly less time resolution than real time data. Of these 12 flares, 7 were observed only through memory readsouts. With these limitations in mind, we conclude that all flares probably include x-ray emission as an essential part of the flare process.

This work was performed under the auspices of the U. S. Atomic Energy Commission.

Hydromagnetic Model of the Solar Cycle.

Y. Nakagawa and P. Swartztrauber, National Center for Atmospheric Research. - The previous hydromagnetic model of the solar cycle, which was confined to the axisymmetric incompressible fluid, has been extended to non-axisymmetric case. With the assumption that the core rotates with a constant angular velocity and the surface rotates differentially with a prescribed manner, the hydromagnetic equations of the problem are integrated numerically. The results show a number of interesting features, such as the developments and decays of bipolar regions, as well as the general migration of the active regions toward the equator.

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Solar Rotation as Measured in EUV Chromospheric and Coronal Lines.

Robert W. Noyes, Harvard College Observatory, and George W. Simon, Sacramento Peak Observatory. - Active regions were followed across the disk on EUV IV spectroheliograms. Using the Lyman Continuum, MgX, and Si XII, all the observations showed differential rotation, and an increase in the equatorial rotation with height. The solar rate is 14.3 degrees/day in the Lyman Continuum and 15.0 degrees in MgX, with measurement errors of 0.6 to 1.1 degrees/day.

Solar Eclipse in Part IY from OSO-5. B. Parker and W. A. Rense, University of Colorado. - The March 7, 1970 solar eclipse was observed as a partial eclipse by instruments in the OSO-5 satellite. Measurements of intensity variations were made by a wheel ultraviolet spectrometer in three spectral ranges: 280-370 Å, 465-630 Å and 760-1030 Å. Limb brightening was detected for the first time of these bands, but not for the third. The effects of plage areas were apparent, and estimates were made of the brightness of these regions in each of the three bands.

Motion Picture Record of the 7 March 1970 Total Solar Eclipse. J. M. Pasachoff, Hale Observatories, and Donald H. Menzel, Harvard College Observatory and Smithsonian Astrophysical Observatory. - A time-lapse motion picture of the total solar eclipse of 7 March 1970 is presented. It was taken in Chihuahua, Mexico by an expedition of the Harvard College Observatory, Smithsonian Astrophysical Observatory and National Geographic. Partial phases, second and third contacts, and totality are included. The 16mm camera was mounted on the same equatorial clock-driven mount that bore cameras that photographed coronal streamers to distances from the sun greater than 10 solar radii.

A Case of Repeated Emergence of Magnetic Flux at the Same Location. S. W. Prada, Hale Observatories. - An extended region of solar activity was followed over five months in the beginning of 1969. A study of the photospheric movies and of other data shows that region was repeatedly reactivated by the emergence of new magnetic flux in the form of AR's. Most of the AR's emerged near one of two favored Carrington longitudes. Inverted polarity occurred often, and most, possibly all of the large flares were associated with inverted polarity. In some cases the fields emerged inverted. In other cases inverted polarity resulted from the interaction of the emerging fields with those already present.