agreement with the ratios given by Reber (1971) at 90 GHz.

Using Linsky’s lunar brightness temperature spectrum the absolute solar brightness temperatures, calculated from the sun-to-new moon ratios, are 7729 K and 7660 K at 90 and 93 GHz respectively.

17.05.03 Observations of the 21 August 1975 Proton Flare with the Haystack 120-ft Radiotelescope.

R. N. STRANNA, AFGL - Brightness temperature and circular polarization measurements were made of active region McMath No. 13811 prior to and during the IMP 1N flare responsible for a 0.6 DB polar cap absorption event at 30 MHz. Data samples were obtained once every three seconds of time as the active region was tracked with a 5 arc min beam at 7300 MHz. At the earliest observation time (1345 U.T.) the region brightness temperature was 31,300 K, with the background sun being a nominal 22,000 K. A slight gradual rise in temperature to 37,000 K peaked at 1424 U.T. The temperature then proceeded to continually decrease to a low of 23,000 K (27% above background level) at 1511 U.T. Part of the region’s low temperature can be attributed to its 74° W longitude, where a decrease of 25% is due to a part of the beam being off the solar disk. In spite of this effect, however, the region temperature was well below levels normally associated with regions prior to a flare (even for small sub-flares). After 1516 U.T., the burst rapidly increased in intensity until it saturated the receiver channels at 1518:41 U.T. with brightness temperature $T_B > 140,000$ K. Low resolution observations at Sagamore Hill recorded the peak intensity at 1135 s.f.u. on 8800 MHz at 1520.0 U.T. This great burst had the characteristic U-shaped spectrum of proton flare events. Although, throughout the Haystack observations, no signs were noted that the region would produce a flare, let alone a proton flare, a post analysis did reveal a reversal in region polarization at 1515 U.T.

17.06.03 Observations of a Radiatively Cooling Sub-flare. S.K. ANTOCHOS* and J.R. UNDERWOOD, Stanford U. and G. FELDMAN, NRL - We present observations of the sub-flare of August 9th 1973 made by two of the instruments aboard Skylab. X-ray photographs and proportional counter spectra were obtained by the S-056 x-ray telescope, while the S-052B instrument obtained ultraviolet line intensities and profiles. From these data we have estimated the physical conditions within the flaring plasma and constructed a coherent picture of the cooling phase of the event. Our results indicate that radiation, rather than conduction or other processes, is the dominant mechanism by which the coronal plasma cools. We believe this to be the explanation for the decrease in emission measure and for the downward motions in the transition region observed during the decay phase of this event.

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17.07.03 A Numerical Simulation of Flare Cooling. K.R. KRAHL, U. of Ala. in Huntsville - A one-dimensional Lax-Wendroff hydrodynamic code, including Spitzer conductivities, radiative loss, and treatment of chromospheric evaporation, is applied to the decay phase of the flare plasma contained in a magnetic flux tube of constant cross-section. For a specific event, results are compared with the time evolution of electron temperature and density inferred from the MSFC/Aerospace S-056 X-Ray experiment.

17.08.03 Umbrae Flares. F. Tung and R.L. Moore, Big Bear Solar Observatory, Hale Observatories, CIT - Creep flares in general prefer the spot-free space in the active region. Flare expansion is stopped at the boundary of a large spot (Svestka, 1976). Although patches of large flares are seen spread over a part of or the entire umbra of spots - such as the great flares of August 1972; so far it has not been reported in cases where the flare patch is entirely within the sunspot umbra. We present here 2 such regions: MM 12417 on July 5, 1973 and MM 13738 on June 29, 1975. Both had dipolar bipolar magnetic field with BP spots. Each flared more than once in the umbra and each produced a flare of the 2-ribbon type with one ribbon in the sunspot umbra, the other in the plage. Details of the umbrae flares are discussed along with their possible mechanism.

17.09.03 Slowly Moving X-Ray Disturbances from Flares. D.M. RUST and Z. SVESTKA, AS&AE - Nine hundred sixty-nine individual soft X-ray pictures, taken during the Skylab mission with 64 sec exposure time in the spectral range 2 - 32 and 14 - 54 Å, have been arranged in the form of a synoptic movie covering seven solar rotations. This movie has made it possible to detect several post-flare X-ray disturbances travelling within extremely wide angles out from the flare site in the form of moving clouds, ap-