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# SYMPOSIUM ON ASTROPHYSICS

*Chairman*: PROFESSOR D. S. KOTHARI

Dr. P. L. Bhatnagar gave a brief account of the work done on magneto-hydrodynamics by Alfven, Astrom, Lundquist and others, pointing out the growing importance of the subject in the context of astro physics. He discussed how one could take into account in a natural way the effects of compressibility, finite electric conductivity and transfer of energy by working through the molecular aspect of an ionized-gas.

Dr. Vainu Bappu summarized the data on the chromospheric phenomena in Wolf-Rayet stars and the stars of spectral types *F*, *G*, *K*, *M*. He discussed the nature of *H* and *K* emission lines of *Ca II* observed in many *F*, *G*, *K*, *M* stars and suggested that their origin may possibly be explained in terms of large scale prominence activity or calcium flocculi. He then pointed out that there are certain basic differences between the appearances of the $K_2$-profiles in the integrated spectrum of the sun and that of the other stars and suggested that these can be explained in terms of the high temperature corona of the sun. He reported that the $K_2$-profiles of the stars analysed by him indicate a large scale turbulent activity particularly in supergiant chromospheres, the trend increasing from luminosity class V to luminosity class I. He then passed on to the Wolf-Rayet stars and explained that recent investigations suggest a need for considerable revision of the Beal's picture of the atmospheres of *W*-stars.

Dr. R. S. Kushwaha spoke on the pulsations of stars with variable ratio of specific heats, and observed that one of the crucial points in the pulsation theory is the proper interpretation of the relation : *Period of pulsation* $\times$ (*mean density*)$^{\frac{1}{2}} = K$, a constant. The existing theories give a low value for *K*. He pointed out that this discrepancy can be removed in the case of certain stars by taking a suitable law of variation of the ratio of specific heats.

Dr. M. A. Naqvi spoke on the physical conditions in solar corona and pointed out that although many emission lines have been reported to be visible in the coronal spectrum, only about twenty-four of them are definitely known to arise in the inner corona. Edlén has made an attempt to identify these lines. According to him a large number of them is due to the highly ionized atoms of iron, nickel, calcium and argon, but some of the identifications are doubtful and some of them still remain unidentified. He, then, reported that Kundu, Garstag and he are carrying on this work, though some of their conclusions are bound to be uncertain as no laboratory data are available about the spectra of the highly ionized atoms.

The following speakers could not present their papers on account of the shortage of time :

(1) Dr. F. C. Auluck: Fragmentation and size distribution of stars,

(2) Mr. Pyare Lal : Pressure ionization and the constitution of planets.

Dr. Gagan Behari Bandopadhyay had sent the synopsis of his talk on " Homologous Radial Motion of a gas sphere and an interesting equation related to it ", but was unable to attend the Conference.