DISCUSSION

In the discussion of the papers of Section III, Dr L. Gratton stated that in the case of β Lyrae and other close binaries, one may expect that the radii of the components are considerably larger than those of single stars of the same mass. This would cause the central temperatures to be lower and, in turn, the luminosities to be smaller. It might even turn out, according to Gratton, that in close binaries the generation of energy might depend on the p–p reaction rather than on the C–N cycle, notwithstanding the large masses of such stars.

Dr W. P. Bidelman suggested in connexion with the question of the absolute magnitude of β Lyrae, that a reliable value of this quantity could almost certainly be obtained from the spectroscopic absolute magnitude of the visual companion. He believed that the visual absolute magnitude of β Lyrae derived in this way was of the order of -4 to -5, but stated that a more reliable value could be determined.

Dr A. Van Hoof made reference to Dr Struve's comments on the spectral peculiarities of the β Canis Majoris stars, and described his own discovery, in β CMa itself, of the periodic appearance and disappearance of two lines at $\lambda\lambda$ 4818·3 and 4845·6. At about the time of maximum amplitude of the radial velocity variation, these two lines are of about the same strength as lines of the nearby Si III triplet. But at about the time of minimum velocity amplitude, these new lines are completely invisible. In other words, the pair is present when the short-period variations (P_1 and P_2) are in phase, but vanishes when these variations are out of phase. The λ 4818 line has a normal profile for its intensity, but λ 4845 is too wide for its strength. The origin of these lines is obscure, according to Van Hoof. It would be interesting to find if other stars of this type show the same features.

Dr Martin Johnson posed a question whose answer he felt might tie together the papers of Dr Mustel, Dr Struve, and Dr Walker. The contributions of the last two authors discussed the behaviour of binary stars and the circumstellar material in their vicinities, and Dr Mustel made the interesting suggestion that novae possess strong magnetic fields. Dr Johnson inquired what changes in the ordinary mode of flow of the circumstellar gas streams would follow if one or both stars were to have strong magnetic fields, and if these fields were parallel, or antiparallel, or oriented obliquely. An answer may be difficult to make, but Dr Johnson believed it might bear significantly upon the possible causes of outbursts, since electro-magnetic effects are able to amplify small disturbances.