GENERAL DISCUSSION – THIRD SESSION

Faulkner: The general agreement between the interstellar extinction obtained from comparisons with radio observations, and that obtained from observed line ratios in the visible region argues for uniformity of the ratio of total absorption to selective absorption in the directions of the observed planetary nebulae. This contrasts with the variation of this ratio obtained from observations of some other objects, particularly H II regions.

Aller: It is quite possible to observe the spectra of many planetary nuclei and compare them with normal Population-I stars. In this way, if one believes the conventional interpretation of stellar spectra he can deduce the effective temperature of the observed stars. For example, Wilson and I found a T_e of about 35000 °K for the central star of NGC 2392.

Reeves: The O/H ratio of 3×10^{-4} reported by Gebbie would place the planetary nebulae between Population-II and Population-I stars, in agreement with the idea that they are Intermediate Population objects.

Feast: I would like to ask if anyone has made any abundance estimates for very distant planetaries in the direction of the centre, in the way that was done for the M 15 planetary?

Aller: Some distant faint planetaries can be observed but not many lines can be measured. Therefore our information on the abundances in these objects must be less precise.

O'Dell: Two very high-velocity objects in the direction of the galactic nucleus were photoelectrically measured in 1963 and found to have He/H ratios the same as nearby planetary nebulae.

Houziaux: Do the permitted O II or N I lines observed in planetaries show the same extent as the corresponding forbidden [O III] or [N II] lines?

Aller: The permitted lines of O II are observed in the brighter regions that show [O III] but the intensities are lower by a factor of 1000. The permitted N I lines fall in an unfavorable spectral region. For these reasons there are no observational measurements that can answer your question.

Weidemann: In view of Sargent's recent observation of a He deficiency in a hot star in M 15, the He/H measurement for the planetary nebula (K 648) is of special importance. What probable error would you assign to your result, which indicates a high He abundance of He/H = 0·18?

O'Dell: The scatter of the observations indicates an uncertainty of about 20%. The mean value found by O'Dell, Peimbert and Kinman has recently been confirmed by an independent photoelectric study at the Lick Observatory by Spinrad and Peimbert.