

## HORIZONTAL BRANCH STARS

At this point in the advertised programme there was expected to be an invited talk by P. Demarque but he was unfortunately unable to be present at the Symposium. At short notice I. Iben gave a very brief introductory survey of the problem on the understanding that he would not have to provide a written version for the published proceedings. As some questions in the General Discussion refer to Iben's survey, an edited version\* of Iben's remarks follow.

EDITOR

The properties of horizontal branch stars depend on the amount of carbon, nitrogen and oxygen that they contain but all theoretical models have difficulty in explaining those stars right at the blue end of the horizontal branch. The length of the theoretical evolutionary tracks always appears to be less than what is observed. This might possibly be explained by a variation in mass loss at the top of the giant branch. Another possibility is that allowance for overshooting of convection or semi-convection might lead to an extension of the evolutionary loops in HR diagram.

There has in the past been some difficulty in understanding the relative numbers of RR Lyrae stars of types ab and type c in globular clusters. It now seems possible that it can be explained because there is a region in the instability strip in which stars are unstable in both the fundamental mode and the first overtone. If stars entering this region from the left continue to pulsate in the overtone and those from the right continue in the fundamental, the number of variables of the two types will depend on exactly where, relative to the instability strip, stars enter the horizontal branch.

The giant branch in the globular cluster  $\omega$  Cen is very wide. This could be so because the observed giant branch contains post-horizontal branch stars as well as pre-horizontal branch stars. However, another possibility is that there is a spread in chemical composition in the stars in the cluster.

\* The Editor takes full responsibility for this version.