

# HORIZONTAL BRANCH

AFTER CORE HE FLASH ( $\rho \sim 2 \rho_{\odot}$ )

— CONTRACTION AND COOLING

(WHY: CORE EXPANDS — MIRROR PRINCIPLE)

— STARS OF DIFFERENT INITIAL MASSES HAVE COMPARABLE CORE MASSES @ HE CORE FLASH

→ FORMATION OF HORIZONTAL BRANCH IN HRD

( $L \sim \rho_{\text{core}}$ )  $L \sim 50 \dots 100 L_{\odot}$

(RELATION: HIGH  $\rho_{\text{core}}$  → RED, RIGHT)

LIFETIME  $\sim 10^8$  YR

MASS LOSS → CHANGE OF POSITION

POSITIONALLY UNSTABLE RR LYRAE VARIABLE STARS

$P \sim$  FEW HOURS

[NOTE: ON HB: ENVELOPE MOSTLY RADIATIVE  
(OTHERWISE WOULD BE ON RGB)]