



**Figure 13.29** A composite color-magnitude diagram for a set of Population I galactic clusters. The absolute visual magnitude is indicated on the left-hand vertical axis and the age of the cluster, based on the location of its turn-off point, is labeled on the right-hand side. (Figure adapted from an original diagram by A. Sandage.)

in the core, extending the star's main-sequence lifetime, or a merger with a close companion.

The successful comparisons between theory and observation that are provided by stellar clusters give strong support to the idea that our picture of stellar evolution is fairly complete, although perhaps in need of some fine-tuning. Continued refinements in stellar opacities, revisions in nuclear reaction cross sections, or much-needed improvements in the treatment of convection will likely lead to even better agreement with observations. However, much fundamental work remains to be done as well, such as developing a better understanding of the effects of mass loss, rotation, magnetic fields, and the presence of a close companion.