

Observing Stellar Evolution Coordinator:
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Introduction

Everything that you see in the night sky is visible to you because of light from a star. The stars themselves, nebulae, planets, moons, are visible because of starlight. Even dark nebulae are visible because they block the illumination of stars or other objects lit up by stars. We exist because early generations of stars generated the elements that make up our planet and the chemical elements required for life. It is not an understatement to say that we exist because stars exist.

The Observing Stellar Evolution club will be of interest to beginning observers as well as more experienced observers. The purpose of this club is to develop in the observer an appreciation for the most common objects that they see in the night sky – stars. Stars, like us, are born, live their lives and end their lives. Understanding this 'stellar evolution' is important to understanding how the universe works.

Some of the objects in this observing list are on other Astronomical League observing lists, so you may have already observed some of the objects. In addition to performing the observations, you will have enough information to put each object into the context of stellar evolution. In the end, observing is something you do in your mind. It's not about simply seeing the object, it's about understanding what the object is, why it is important, why it is interesting and how it fits into the story. Once you do, you'll be able to say 'oh, WOW' for objects that you may have overlooked or may have underappreciated so far.

Many of the objects in this list are easy naked eye objects, but some will require a small telescope and some patience to find. Not all stars are bright, and end-of-life stars can be particularly dim. The bright objects will generally be visible from a home in the city or in the suburbs, the dimmer objects will require reasonably dark, but not pristine, skies. A few of the objects will be better seen under clear dark skies with a large telescope.

Rules and Regulations

All members of the Astronomical League can receive a certificate and a pin for the completion of this program. You can be a member of the A.L. because you are a member of an affiliated club, or you can be a member of the A.L. 'at-large'. The observing list for this program is divided into several sections each illustrating a separate phase of stellar evolution. To meet the objective of this program it will be necessary for you to observe the objects in each of the categories.

A total of 100 objects must be observed to complete this program. A log sheet that meets the requirements of this program is at the end of the on-line manual. The observations must be made in the context of completing this program; **objects that you have already observed must be observed again to complete this program.**

Your observing log sheet must include the following on each of the objects:

- Object name
- Date & Time (local or Universal Time)
- Observing Site – City, Town, State, Country or Latitude and Longitude
- Telescope used to make the observation – generic description is ok (Examples: 8” SCT, 4” refractor, 15” Reflector, etc.)
- Magnification used
- Object description

As part of this program you’ll be looking at, and understanding the HR diagram. This diagram was developed independently by Ejnar Hertzsprung and Henry Norris Russell in about 1910. If there is a lot to be gained from the study of the HR diagram, its concept is easy. The X (horizontal) axis of the chart is temperature of the star (color and temperature are the same thing) and the Y (vertical) axis of the chart is the luminosity of the star. The luminosity is the intrinsic brightness of the star. A star's magnitude is the brightness of a star as seen from earth, so a high luminosity star that's very far away may look dim to us and a lower luminosity star that is nearby may appear brighter to us.

Of course, I hope that you will enjoy learning about stellar evolution and observing the objects in this program as much as I have enjoyed developing the program.

Related Links

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PDF File Format

PDF -- “Observing Stellar Evolution” Manual

PDF – “Observing Stellar Evolution” Object List