

## SELECTING PROGRAM STARS FOR BAV OBSERVERS

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### Abstract

Variable stars appropriate to observers' experience and equipment may be selected by plotting variable stars on an amplitude vs. brightness diagram.

Being an amateur organization, the Berliner Arbeitsgemeinschaft für Veränderliche Sterne (BAV) has as one of its objectives to attract stargazers to the systematic observation of variable stars. A question every newcomer will ask is, "What stars do you recommend to observe, and why?". The answer cannot be given easily. It depends on the likes and dislikes of the would-be observer as well as on characteristics of the stars.

The BAV has started a systematic approach to observing eclipsing binaries because they make up its main observational program. Extension to other groups of variables is planned. The approach is based on portfolio techniques used in business.

First, criteria had to be found that allowed a meaningful grouping of stars. After some trials, BRIGHTNESS and AMPLITUDE were chosen and made the axes of a diagram. The area of the diagram was then divided into four fields that correlated with observing techniques used by amateurs (see Figure 1).

These four areas are as follows:

1. The TRAINING field contains bright stars of large amplitude. These stars are ideal for training or testing observers that do not own a telescope or have a small one.

2. The DOBSON field contains faint stars of large amplitude. Observers with larger telescopes will find in this field variables for training purposes as well as many stars that lack observations due to their faintness.

3. Faint stars of small amplitude are in the PHOTOGRAPHIC field means. They can be monitored photographically with single-lens-reflex cameras with telephoto lenses or small Schmidt cameras. This is successfully done by some BAV members.

4. Bright stars of small amplitude can be found in the PHOTOELECTRIC field. This designation assumes that most observers aiming for photoelectric measurement are equipped with small to medium telescopes.

Figure 1 shows the diagram with two typical eclipsing stars and their brightness range written in each field. The graph can be extended to a three-dimensional diagram. Differences between observed and computed times of minima (O-C) seem to be a good choice for the third axis provided that some "attractivity function" can be found that correlates the appearance of an (O-C) curve with an "observations needed" priority listing. A first proposal has been published by W. Braune (1990) and work to refine it continues.

### Reference

Braune, W. 1990, *BAV Rundbrief*, **39** (1), 48.

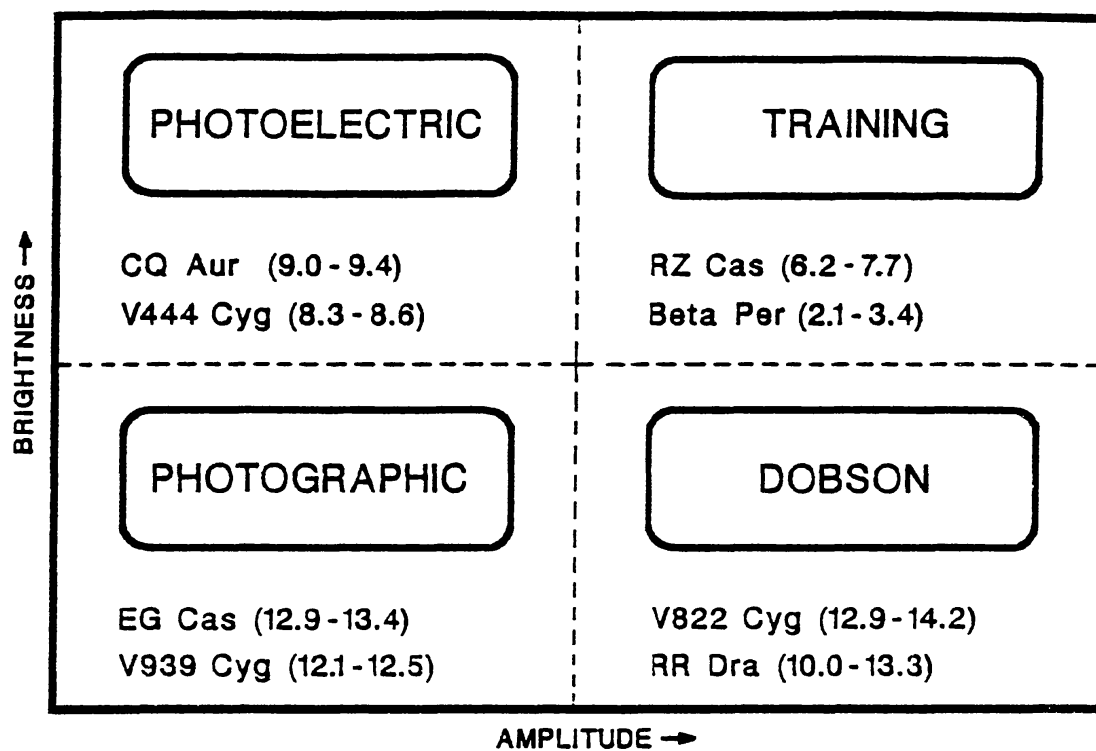


Figure 1. Portfolio diagram with sample eclipsing binaries.