

all formed at the same time. In fact, they have distinct ages that are quite different from one another. Can you determine the sequence from youngest to oldest? What do you notice about the main sequence, red giants, and white dwarfs on these diagrams. Can you put them in some order that makes sense based on what you see? Once you have put the diagrams together, compare your order to other groups in your class. If your order is different from that of another group, discuss to determine which way makes more sense. Try to come to consensus on an order and an explanation for your order. When you are confident that your ordering is complete, show your instructor. Use the Notes pages found at the end of this exercise to record your rationales and consensus sequence.

3. **Based on the order you have derived, what can you say about what happens to a star during its existence?** Does a star begin as a white dwarf, main sequence, or red giant star? Following that stage, what does the star become? Do all stars evolve the same way, at the same pace? How can you tell which stage comes first? When you have arrived at a sequence of stages for stellar evolution, run this by your instructor.

4. **Write up a summary of the sequence you have derived from the data.** Include any other information you know about these various stages in stellar evolution: the type of nuclear fusion going on in the core (if at all), the size, and the temperature, relative to the previous stage.

OPTIONAL STEP 5. Create a story of the life cycle of a star based on your findings. Be as creative as you want. Feel free to take artistic license (by making the stars anthropomorphic, for example), but include actual accurate scientific information (such as which stage comes first, relative temperatures and sizes, etc.).

COLOR MAGNITUDE DIAGRAMS

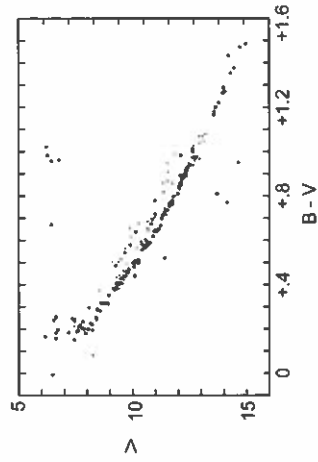


Fig 10.1 *h + x Persei*

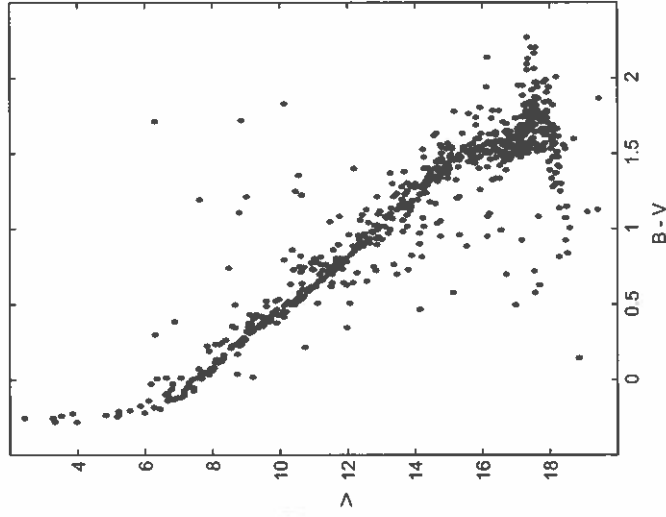


Fig 10.2 *Pleiades*