

**Vassar College Observatory**  
**Department of Physics and Astronomy**  
*Poughkeepsie, New York 12601*

This report covers the period from September 1994 to August 1995.

### 1. PERSONNEL

The astronomy faculty at Vassar College is part of the Department of Physics and Astronomy and includes associate professor Frederick R. Chromey, Director of the Observatory, and Debra Meloy Elmegreen, department chair and Maria Mitchell Associate Professor of Astronomy. A total of 9 seniors graduated with degrees in astronomy (1), astronomy and physics (3) and physics (5). There were 10 juniors in the department.

### 2. EQUIPMENT

The College expects to break ground on a new campus observatory this winter. Primary instruments will be a 32-inch telescope manufactured by DFM, Inc., and a 20-inch telescope manufactured by Optomechanics, Inc. In addition to teaching, the new observatory will support several research projects involving CCD photometry of variable stars.

### 3. RESEARCH

Chromey and Elmegreen obtained JHK images of galaxies using the KPNO 1.3-m telescope and BI images with the KPNO Burrell Schmidt telescope for a variety of galaxy projects. With undergraduate O. Johnson, they confirmed a mini-bar in M81 based on JHK photometry. Together with B.

Elmegreen (IBM) and undergraduates D. Hasselbacher and B. Bissell, they studied isophotal twists and arm and bar properties as a function of Hubble type using JHK and BI surface photometry.

Undergraduate L. Sherman completed her senior thesis on the spiral structure in NGC 157 based on multi-wavelength surface photometry. D. Hasselbacher completed his thesis on properties of bar in early and late Hubble types.

Chromey and Elmegreen studied colors of extended faint tidal features in the Leo Triplet with undergraduate J. McDermott, and in NGC 4485/90 with undergraduate R. Wittenmyer (Williams College), who visited as part of the summer Keck consortium exchange. Faint outer structure in NGC 5248 was examined with undergraduate N. Harrison (Wesleyan University), also part of the Keck exchange, and in NGC 1300 with B. Elmegreen and D. Hasselbacher.

Chromey and Hasselbacher completed their project on flatfield optimization for the Burrell Schmidt telescope.

Elmegreen and J. Salzer (Wesleyan University) studied star-forming complexes with B, I, and H alpha images obtained with the KPNO 0.9-m telescope. Elmegreen continued collaborative radio and optical studies of interacting galaxies with M. Kaufman (Ohio State U.), C. Struck (Iowa State U.), E. Brinks (VLA), B. Elmegreen, and M. Thomasson (Onsala).

Frederick R. Chromey and Debra Meloy Elmegreen