THE HARVARD COLLEGE OBSERVATORY PLATE COLLECTION

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The Harvard College Observatory plate collection is unique in the world in several aspects. First, it is the largest, with a total of approximately half a million plates. Second, because Harvard set up stations very early in the southern hemisphere, the collection covers the entire sky. In fact, the southern hemisphere coverage is slightly better than the northern. Third, the collection is unique in the length of the time interval over which the plates were taken. The first plates were acquired in the northern hemisphere in 1885, and in the southern hemisphere in 1891. There is a substantial gap in the late 1950s and 1960s, but patrol plates were then taken up to 1989. Fourth, the collection contains a very large number of images of a given object. For B = 15 mag or brighter, from several hundred to a thousand or more images can be found; for B = 17.5 mag, one can locate from a few to several hundred images.

Plates are stored at the Harvard College Observatory under very good conditions. In 1931, a specially reinforced, fireproof building was constructed that was designed to hold up to a million plates (as well as house the library and some offices). The Plate Stacks were outfitted with metal cabinets (wood can outgas and cause emulsions to deteriorate), in which the plates are stored vertically. The plates are kept in jackets of high quality bond paper, or, more recently, the inert material Tyvek. The building is heated to $\leq 20^{\circ}$ C in the winter, and cooled to $\leq 22^{\circ}$ C in the summer. There is a filtered air circulation system throughout the entire Stacks. Unfortunately, there is no way of controlling humidity.

Access to the plates depends on the type of plate. The very widest angle series were taken as patrols, and thus are of defined centers. These are stored by center, and one can simply remove from the cabinet all the plates of that region for viewing. The so-called 'series' plates cover smaller regions of the sky, and are stored by number for each telescope. These currently are accessed by cards filed by region. We have started computer disk files for direct blue plates in some of the most highly used series. Data for all the blue plates of the best southern series (0.6 m Bruce refractor) are now entered, and entering for the blue plates of the best northern series (0.4 m Metcalf refractor) is now underway. Progress is rather slow, since we do not have the resources to hire extra staff for this work.

Funding for the care of the plates at the Harvard College Observatory is fortunately stable. Our staff consists of a quarter-time Curator, and a half-time assistant. The costs for staff and miscellaneous expenses are covered by the Draper Fund, a restricted endowment fund set up by Mrs. Draper at the Harvard College Observatory. 'Overhead' expenses — building maintenance,

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light, heat, etc. — are currently paid from Harvard College Observatory general funds. The whole operation is relatively inexpensive, with the total budget considerably under US$100K per year.

The Harvard College Observatory welcomes bona fide astronomers who wish to use the collection. Our normal policy is that plates must be used in situ. We currently have a blink microscope, a variable iris photometer, and a digitized two-screw measuring engine available, as well as numerous light frames. In the case where plates must be taken to other institutions for special analysis, rare exceptions to our no-loan policy are made with very stringent conditions.

Questions about the plate collection may be addressed to the Curator, currently myself, at the Harvard College Observatory, e-mail **"martha@cfa.harvard.edu"**.

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