The following two images are taken with the Allegheny Multifilter Astrometric Camera (AMAC). The guide star for the Gravity Probe B space craft, IM Peg, is shown in each image. The first image is taken without a neutral density (ND) filter. The spike passing vertically through the image of the 5th magnitude star is caused by the over exposure of the image. It appears that IM Peg is either in line with or is part of a small star cluster. The faintest member shown here is 18th magnitude. The motions of these stars and IM Peg are similar but cluster membership is not yet confirmed.

In these images we only show a central area of approximately 165 arc sec square. The FWHM of the images is approximately 1.5 arc sec. The exposure is 9 minutes.
We used an ND4 (a density of 10 to the 4th power) filter to obtain our second image of IM Peg. With a reduction of 10 magnitudes, the count rate is similar to that of the brighter reference stars.

Because a refractor is used, the images are round and not spiked. Because the Thaw 76-cm refractor is corrected to focus red light, there is little background light from neighborhood lights. The Moon is by far our largest source of background light. The diffused light near the edge of the filtered area is caused by the converging background rays as they pass the filter. To reduce internal reflection the ND filter is the first surface of the AMAC optical system.