producing funnel-like apertures through which the ion stream can pass.

This study was carried out under a contract with the Air Force Cambridge Research Center.

*Harvard College Observatory,
Cambridge, Mass.*

Nassau, J. J., Victor Blanco and W. W. Morgan.
Surface distribution of late M stars in the Milky Way.

Objective prism spectra in the near infra-red with a dispersion of 3400 Å/mm at the A band were secured for the detection of cool stars. The investigation was carried out with the 2° prism attached to the 24–36 inch Schmidt type telescope of the Warner and Swasey Observatory. Kodak I-N emulsion was used in connection with Wratten No. 89 filter.

The observational program included:

a) A continuous belt about 4° wide along the galactic equator from $l = 1^\circ$ to $l = 152^\circ$. The estimated infra-red limiting magnitude of the survey was 10.

b) Concurrently with the above and with the same exposures of 5 minutes, 16 plates were taken with centers at galactic latitude $+4^\circ$ and at intervals of $10^\circ 5'$ in longitude. Symmetrical fields were secured south of the galactic equator.

c) Seven plates with exposures of 20 min. on hypersensitized emulsion and 10 min. on non-sensitized plates were taken to reach stars as faint as 13 infra-red magnitude. The field centers were within latitudes -7° to $+4^\circ$ at intervals of about 20° from longitude 355° through zero to 115° , and were selected for apparent freedom from absorption.

The total number of stars in programs (a) and (b) yielded 3718 M5 to M9, 279 C4 and later, and 12 new S stars. The distribution of the M stars shows no clustering as was found in the high luminosity early-type stars. Also there is a marked decrease in the number of M stars with increasing longitude as the anticenter is approached. Except for this gradual decrease other observed variations in the distribution can be accounted for by the effect of interstellar absorption.

The number of M5 to M9 stars per square degree in program (c) ranged from 137 in the Scutum Cloud to 6 at longitude 115° . The decrease in the number of faint M stars with increasing longitude is clearly shown.

*Warner and Swasey Observatory,
Cleveland, Ohio,
and Yerkes Observatory,
Williams Bay, Wis.*

Nassau, J. J. and Daniel Harris III.* OB stars in the P Cygni region.

A region of 89 square degrees around P Cygni was examined for faint OB stars. The four-degree objective prism in conjunction with the Burrell Schmidt-type telescope was used for this purpose. Within this area 249 OB stars are present; of these 136 were published in a previous survey and the rest are given in the present paper. The greatest number of stars of the latter group are faint, limiting photographic magnitude 12.2. The surface distribution of the stars of the two groups is approximately the same.

The photoelectric colors of 140 OB stars were available for the present discussion; of these the colors of 90 stars were determined at Case. A number of highly reddened stars were found, nine of which have C_1 color between 0.40 magnitude and 0.65 magnitude.

The two groups of stars appear to be at the same distance with a distance modulus of 11.1 magnitude. The OB stars present in NGC 6871 appear to be at the same distance as the rest of the OB stars of the region but are less luminous.

*Warner and Swasey Observatory,
Cleveland, Ohio*

Newkirk, Gordon A., Jr. Photometry of a solar flare.

Using the direct intensity recording microdensitometer at the University of Michigan I have made isophotes of a solar flare. Five frames of the $H\alpha$ record taken at the McMath Hulbert Observatory of the flare of July 22, 1950 were selected for the analysis. I found it necessary to print each of these frames and the standardization wedge on lantern slide plates in order to trace them in the microdensitometer. The standardization wedge on each plate was compared with the working density wedge of the microdensitometer. The chemical fog on each plate was reduced to the fog on the working wedge. The isophotes correspond to intensities in the flares such that

$$\log \frac{I}{I_b} = 0.05, 0.10, 0.15, 0.20 \dots$$

Here I is the intensity at a point in the flare and I_b is the average intensity of the photosphere in each frame.

The isophotes show that the intensity gradient in the flare, during its maximum stages, is ex-

* Now at the Yerkes Observatory.