hydrogen clouds with $T = 120^\circ\text{K}$ is 1800 parsecs, which corresponds to the mean distance of the nearest inner spiral arm.

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Henize, Karl G. The Michigan-Mount Wilson southern $H\alpha$ survey.

This paper presents a progress report on the Michigan-Mount Wilson survey of the southern sky for emission stars and nebulae. This survey is an extension of the $H\alpha$ survey initiated at Mount Wilson Observatory by Dr. Paul W. Merrill in order to detect Be stars and planetary nebulae. The southern survey has been carried out by the Observatory of the University of Michigan under a research grant from the Rackham School of Graduate Studies of that university.

The instrument used was the $f/5$ red-corrected 10-inch camera equipped with a $14\frac{1}{2}^\circ$ objective prism. This telescope was specially erected at the Lamont-Hussey Observatory in Bloemfontein, South Africa, for the purpose of completing this survey.

The observing program consists of about 290 plates divided among three series of exposures which penetrate to limiting photoreduced magnitudes 8.0, 11.0 and 13.0, respectively. The short and medium exposure series cover the whole sky south of declination -24° while the long exposures cover the region of the Milky Way.

The searching and cataloguing of the medium exposure series is near completion. All emission-line stars as well as carbon and S stars have been listed. Of chief interest among the emission line objects are Be stars, planetary nebulae, $H\text{ II}$ regions, and T Tauri stars.

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Henriksen, S. Note on 63 Geminorum.

The star 63 Geminorum has long been known as a binary star. On 10 June 1954 the brighter star of this pair, 5.3 mag., was observed during occultation at Canby, Calif., Fallon, Nev., and Deming, N. Mex. The recordings of the occultation appear to indicate the presence of another star in this group.

The reasons for believing 63 Geminorum to be a triple system are

a) the presence of two distinct drops on each recording at the time of occultation;

b) the similarity of the curve shape on all three recordings.

The measured lengths of the time distances between the first and second drops indicate that the two stars are about $0''.05$ apart along the direction of the line of motion of the moon, and less than $10''$ apart in a direction perpendicular thereto; measured intensity ratios indicate that the new star is of magnitude about +8.5. The different measured ratios can be accounted for by the presence of atmospheric haze at two of the stations.

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Johnson, Harold L. An integrator-type D.C. amplifier.

The photoelectric measurement of extremely faint stars or other objects requires long exposures, sometimes as long as several hours. These long exposures are necessary for the same reason that long exposures are needed for photography of faint objects: one must wait until a large enough number of photons have been collected to give the desired information.

One approach that has been tried successfully by W. A. Baum in the design of an amplifier for photometry of very faint objects is that of pulse, or electron, counting. In this method, the number of photoelectrons emitted in a given interval of time by the cathode of the photomultiplier are counted by a decade counter. The intensity of light received is proportional to this number. This pulse-counting method has two serious disadvantages: 1. A considerable complexity of the electronic apparatus with resultant danger of failure; and high original cost. 2. Non-linear response for brighter stars. This is caused by the practical upper limit on the counting rate. Baum's counter cannot measure stars brighter than about 14th mag.

Actually, even for the very faintest objects, the desired information is present on the recorded trace obtained in the manner now nearly universal among photoelectric astronomers. The problem here is the extreme difficulty of reading the recording when the signal-to-noise ratio is unity or less. What is needed is a device that will integrate electrically the area under the deflection, giving a single number. A simple electronic integrator following a conventional D.C. amplifier will accomplish this result.

The practicable integrator-type amplifier constructed at the Lowell Observatory consists of a