appreciable amount. It is probable that the emission lines originate at the bulges because of the deviation from normal equilibrium due to these currents.

There are six binaries of spectral types G5-K0 with rather well known parallaxes, which show emission lines of Ca II; it is shown that for these stars there is a correlation between absolute magnitude and period. It is probable that this relation corresponds actually to a relation between density and radius of the relative orbit.

1. *Contr. Oss. Astr. Milano-Merate*, n.s. No. 17, 1944.
2. *Pub. A. A. S.* **10**, 312, 1943.
3. *Pub. Astr. Obs. Univ. Minnesota* **2**, No. 1, 1934.
4. *Ap. J.* **106**, 481, 1947.

*McDonald Observatory,
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Hall, John S. A photoelectric polarimeter.

A photoelectric polarimeter may be defined as a photoelectric photometer designed to measure the intensity and plane of that fraction of light from a given source that is polarized. The fundamental principle used in the device developed at Amherst is similar to that employed by Öhman.¹ The principal differences lie in the nature of the analyzer used and in the method employed to make the observations.

The analyzer in the Amherst polarimeter is a Glan Thompson prism. This prism permits measurements to be made over an extensive spectral region.

The method employed to make the observations is such that both the plane of polarization and the intensity of the polarized light are indicated on an automatic recorder once every two minutes.

Bench tests have indicated that 0.1 per cent of polarized light can be easily detected when a 1P21 is used as the photosensitive element. With a PbS cell this limit can be extended to one or two parts in 10,000. The same limits can be achieved when the sun is used as a source and the seeing conditions are favorable.

Tests with a 1P21 and the 18-inch Amherst refractor indicate that it would be possible to detect $\frac{1}{4}$ of one per cent of polarized light from stars of the seventh magnitude under average seeing conditions. Plans are being formulated for the observation of some eclipsing stars of special interest.

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1. *Ark. Mat. Astr. Fys.* **29B**, No. 12, 1943.

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Hamid, Salah. Prediction of theoretical radiants from very short periodic comets.

Jupiter's secular perturbations on certain comets cause a rotation of their lines of nodes in the plane of the ecliptic and a periodic motion in their inclinations while the aphelion and perihelion distances of the comets are very slightly affected. Therefore, it is possible for such comets occasionally to cross the ecliptic at the intersections with the earth's orbit and give rise to showers of meteors, provided that the comets' perihelia lie inside the earth's orbit and provided their aphelia lie inside Jupiter's orbit.

An application of Brouwer's theory of secular perturbation of Jupiter on comets, which is valid for comets of inclination less than 36° , has been made by the author. Encke's comet and Comet Grigg-Skjellerup are the only two periodic comets that satisfy the necessary criteria.

Encke's comet gives rise to known night showers, the Taurids, as shown by Whipple, while calculation indicates that it can give rise also to two daylight showers: June 12, $\alpha = 65^\circ.7$, $\delta = +26^\circ.1$ and May 19, $\alpha = 43^\circ.5$, $\delta = +13^\circ.2$. The first appears to be detected with radar by Lovell.

Comet Grigg-Skjellerup gives rise to two night showers: January 21, $\alpha = 107^\circ$, $\delta = +9^\circ$; February 9, $\alpha = 131^\circ$, $\delta = +26^\circ$; both of which seemed to be observed visually by Öpik and the American Meteoric Society. Also it produces two other daylight radiants, June 21, $\alpha = 105^\circ$, $\delta = +15^\circ$; May 31, $\alpha = 83^\circ.5$, $\delta = +37^\circ$; both of which appear to be detected with radar by Clegg, Huges, and Lovell.

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Hoffleit, Dorrit. International Business Machines for spectroscopic absolute-magnitude reductions and results for 500 A5-G stars.

In resumption of the war-interrupted Harvard program for the determination of spectroscopic absolute magnitudes of bright southern stars, provisional results have now been obtained for approximately 500 A5-G2 stars, most of them 5-7 visual mag. and south of -20° . The spectra were obtained at the Harvard Southern Station with the 13-inch Boyden refractor and an ob-