ordinarily similar in both colors, but the magnitude of the variation in the blue is usually appreciably greater than that in the yellow. No evidence of periodicity or of other regularities of these fluctuations is shown by the observations available at present.

A slower type of light variation is indicated by the observations of the same part of the light curve taken six or more days apart. Such observations sometimes yield congruous results, but sometimes differ by amounts ranging to more than 0.1 mag. Magnitude differences between the comparison and check stars on these nights show no such variation. Again the variation is usually greater in the blue than in the yellow.

While it seems premature to attempt an explanation of these fluctuations, it may be pertinent to point out that the spectral region outlined by the yellow filter contains the $H\beta$ line; the blue region contains $H\gamma$, $H\delta$, $H\epsilon$, and the lines of $Ca II$. In his spectrographic study of the system, Struve² found remarkable changes in the intensities of these lines.

1. *A. J.* **54**, 182, 186, 1949.

2. *Ap. J.* **106**, 255, 1947.

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Wyatt, Stanley P., Jr. The frequency function of true axial ratio for the spheroidal galaxies.

In order to determine the distribution function in intrinsic shape for the agglomerate of spheroidal galaxies it is necessary to work along statistical lines, because our observations are not yet searching enough to reveal the orientation of each single system relative to the line of sight.

The data in the Shapley-Ames galaxy catalogues permit calculation, for about two hundred E-type galaxies, of the ratio of minimum to maximum diameter as observed in projection, and thus construction of a frequency function of observed axial ratio. Then, assuming that these systems are actually oblate spheroids and that their rotational axes point randomly in space, we derive the integral equation relating the observed and true functions. The left member of this equation is the known observed function and the integrand is the product of the unknown true function and a kernel whose form follows from the assumptions. This relationship is then solved for the desired function through a reduction to Abel's equation. Evaluation of the solu-

tion, both numerically and graphically, indicates that the spheroidal galaxies separate rather distinctly into two groups. The derived curve has a definite minimum near 0.7 in true axial ratio, and about one-third of all spheroidals are more globular than this, while some two-thirds are well-flattened.

The present results accord with earlier findings by Hubble and others in showing an excess of highly oblate systems over nearly spherical ones, but the avoidance of moderate axial ratios appears to be a new feature, and one that cannot be eradicated without doing violence to the observational data.

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Wylie, C. C. The orbit of the meteor of April 3, 1949.

For the spectacular meteor of April 3, 1949, Dr. J. F. Heard, of the David Dunlap Observatory, published a selected list of measurements made at personal interviews. These measurements included altitude and azimuth for both appearance and disappearance. The duration was also measured, and a mean published.

Dr. Heard derived the path, radiant, and velocity from these measures; but the data appeared sufficiently complete and accurate to justify the application of a new method of reduction, which we have not previously used on observations made outside of our own territory. As compared with conventional methods of reduction, it makes more use of the available data.

The longitude and latitude of the point of disappearance, and the height in miles, was obtained by the conventional methods, and also from the slope of the apparent path, and a weighted mean adopted. The radiant was then obtained from the apparent slope of path. As compared with a plot of the raw data, the diameter of the area of intersections determining the radiant was reduced by a factor of nearly ten. The height in miles of the points of appearance for the various observers was then obtained from their reported lengths of paths, and a weighted mean adopted. The projected and true lengths of paths were then found, and using Dr. Heard's figure for the mean duration the apparent velocity was found.

Using standard methods of reduction Dr. Heard obtained for this meteor: altitude of

radiant 72° , azimuth of radiant 142° , and heliocentric velocity 27 miles per second. He assumed that the meteor had been moving in an elliptical orbit of high eccentricity.

The new reduction gives altitude of radiant 55° , azimuth of radiant 135° , and heliocentric velocity 23.2 miles per second. The elements of

the orbit are found to be: $P = 3.6$ years, $e = 0.63$, $i = 1^\circ$, $\Omega = 14^\circ$, and $\omega = 216^\circ$.

The orbit is direct, of low inclination, and of moderate eccentricity, similar to other orbits we have found for spectacular and stone dropping meteors.

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TITLES OF ADDITIONAL PAPERS PRESENTED
AT THE MEETING IN BLOOMINGTON, IND.

Cunningham, L. E. Minor planets with perihelion distances inside the earth's orbit. (Invited Paper II.)
Aller, Lawrence H. Balmer decrement in the planetary nebulae.
Eggen, Olin J. Some relationships among the properties of galactic Cepheids.
Gaposchkin, Sergei. Analysis of faint variables in the galactic nucleus.
Goldberg, Leo. The theoretical intensities of telluric absorption lines.
Greenstein, Jesse L. A theory of T Tauri variation.

Harris, Daniel L. III. The parallax of the nucleus of the Ursa Major cluster.
Horak, Henry G. Diffuse reflection by planetary atmospheres.
Roach, F. C. The height of atmospheric OH emission.
Slettebak, Arne. Lines of OI in the infra-red spectra of Be and peculiar A stars.
Stebbins, Joel, A. E. Whitford and H. L. Johnson. Photoelectric magnitudes and colors of stars in Selected Areas 57, 61 and 68.
Wrubel, Marshal H. Turbulence and the curve of growth.