PHOTOGRAPHIC LIGHT CURVES OF EROS DURING THE 1940 OPPOSITION

By F. E. Roach and Edwin Bailey

During its 1940 opposition Eros was just observable at Tucson in spite of its low altitude. The earth was about fifteen degrees from the equatorial plane of the asteroid at the time and, as predicted, its light varied through a range of about one magnitude.

On each of six nights the object was photographed with the Steward reflector over an interval of three hours. Each exposure was for two minutes, and four were made on each plate. The images were measured with a Stetson photometer. Three comparison stars were employed and their relative brightness determined from extrafocal plates of the fields.

The range in brightness for each night is compared with the predictions of the theory of a three-axis ellipsoid, as presented by Roach and Stoddard,* in the table below. The times are not corrected for the light times of the observations. From the times of maxima and minima the period of rotation is found to be $0.2195 \text{ day} = 5^{h} 16^{m}$.

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<tr>
<th>Date</th>
<th>Time of max</th>
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ON THE ABUNDANCE OF H, C, N, AND O IN THE SUN FROM MOLECULAR SPECTRA

By F. E. Roach and Pearl J. Rubenstein

From the intensities of molecular lines in the sun and from recently determined $f$-values, the logarithm of the number of atoms in a column of the solar reversing layer one square centimeter in cross-section is found to be: H, $24.6 \pm 0.9 \text{ (p.e.)}$; C, $21.4 \pm 0.4$; N, $20.6 \pm 0.6$; O, $21.6 \pm 1.6$. This solution is in fair agreement with other determinations based upon atomic lines.

AN INTERESTING PROMINENCE

By Walter O. Roberts and D. H. Menzel