oxygen are overabundant in R CrB by the same factor as carbon we obtain $X = 0.00014$, $Y = 0.66$, $Z_{\text{eno}} = 0.33$.

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Sloanaker, Russell M. *Apparent temperature of Jupiter at a wave length of 10 cm.*

Thirty-three measurements of the apparent temperature of Jupiter were made between June 10 and August 20, 1958 at wave lengths of 10.2 and 10.3 centimeters using the Naval Research Laboratory, 84-foot diameter, paraboloidal antenna. Each measurement consisted of the point by point average of from 4 to 8 right-ascension scans of the antenna beam thru the position of Jupiter at the sidereal rate. The measured apparent blackbody temperatures ranged from 300°K to 1010°K about a mean of $640^\circ\text{K} \pm 85^\circ\text{K}$ estimated standard error. The high value of apparent temperature was unexpected, because it was higher by factors of 3 to 4 than apparent temperatures previously measured in the centimeter wave length region of the spectrum, at wave lengths between 3.15 cm and 3.75 cm, which were in reasonable agreement with temperatures measured in the infra-red.

The present measurements give a roughly normal distribution of apparent temperature with a standard deviation of 190°K . On the basis of the estimated measurement errors, the expected standard deviation is about 145°K , which is in reasonably good agreement with the observed scatter, but does not preclude the possibility of a variable component in the intensity of the radiation. The measured temperatures show no long-time trends over the 71 day measurement interval, but show a suggestion of a cyclical variation of about 30 per cent correlated with a rotation rate between 40 seconds and 2 minutes longer than the rotation period of System II.

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Strand, K. Aa. *The astrometric orbit of Epsilon Aurigae.*

An attempt to determine the astrometric orbit of ϵ Aurigae was based on 124 plates with multiple exposures taken on 59 nights between 1926 and 1958 with the Yerkes 40-inch refractor.

A period of 27.08 years and an eccentricity of 0.33 were adopted in the solution for the parallax and orbital elements.

The parallax was found to be $0''.006 \pm 0''.003$ (*p.e.*) as compared with the spectrophotometric parallax of $0''.001$ based upon the brighter component being a supergiant F2 star with an absolute magnitude of -7.0 .

The two orbital elements of special interest are the orbital inclination and the semi-major axis which were found to be 72° and $0''.014 \pm 0''.004$ (*p.e.*) respectively.

The inclination obtained in this study agrees with the value generally accepted to explain a grazing eclipse. The latter is most consistent with the spectrophotometric data.

With the above value of the inclination, the spectroscopic orbit yields a semi-major axis of 2.1×10^9 km or 14 a.u. This value, compared with the astrometric semi-major axis, gives a parallax of $0''.001$.

It is concluded that even a substantial increase in the astrometric data will lead only to very approximate values for the orbital elements.

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Tuve, M. A., Ford, W. K., Jr., Hall, J. S. and Baum, W. A. *Speed gains obtained with a cascaded image converter.*

A 30-fold gain in speed over conventional direct photography has been obtained with an R.C.A. two-stage cascaded image converter attached to the Cassegrain focus of the Naval Observatory 40-inch reflector at Flagstaff. Under the operating conditions adopted, the fog level due to dark emission inside the converter was much less than that due to the natural night-sky background at an optical focal ratio of $f/6.8$. If the sky background had been absent, the dark emission alone would have limited the exposure time to about 20 minutes, which would have been equivalent to a 10-hour exposure with conventional photography.

Observations of close double stars having separations as small as $0''.7$ have been attempted with the converter attached to the Lowell 24-inch refractor. A 16-mm motion picture camera was mounted behind the converter in order to record very short exposures in rapid succession. It was thereby possible to catch occasional images which were less blurred by "seeing" than they would have been under the same conditions with the longer exposures required by conven-