feature. With a 12-inch Cassegrain reflector feeding into a 1P21 photocell and thence to a Brush Recorder, which also records the time signals emitted by WWV, the observers measure the instant of occultation. In the computation, the results are substituted into the following equation:

$$\Delta\sigma = \bar{a}\Delta\lambda + \bar{b}\Delta\phi + \bar{c}\Delta\alpha + \bar{d}\Delta\delta + \bar{e}\Delta\pi + \bar{f}\Delta k + \bar{g}\Delta H.$$

One equation of this kind is formed for each station. The quantities $\Delta\lambda$, $\Delta\phi$ and ΔH can be set equal to zero, since the U. S. triangulation, after transfer to the Hayford ellipsoid, is essentially error-free. The quantities $\bar{c}$, and $\bar{d}$, and $\bar{f}$ are the same at both (or all three) stations, since they depend on the star's declination and the position angle of the contact, which do not change. The quantities $\Delta\alpha$, $\Delta\delta$ and Δk , error of the moon's radius, are also the same at all stations; consequently these terms drop out in forming the differences. Thus the correction to the parallax becomes, for two stations, S_1 , and S_2 ,

$$\Delta\pi = \frac{\Delta\sigma_1 - \Delta\sigma_2}{e_1 - e_2}.$$

The value found was

$$\Delta\pi = -0.056 \pm 0.033.$$

The errors arise largely from the libration of the moon during the time of the observation, and cannot be estimated with any degree of precision. The residuals $\Delta\sigma$ at individual stations indicated an error of 0".0052 for an individual observation. The resulting value of the moon's distance is:

$$384,410 \text{ international kilometers,}$$

an increase of about 6 kilometers from Brown's value. This value is to be regarded as preliminary, since it may be possible to correct it when the librations can be taken into account, as, for example, by the aid of the new tables under construction at the Naval Observatory.

A byproduct of the investigation is the discovery that the star 228 B Aurigae, No. 996 of the Zodiacal Catalog, is double. The separation is 0".053 resolved along a position angle of $255^\circ 53'$; the other component of the separation is unknown. The difference in brightness between the components is 0.5 mag. It will be possible to observe this star again in the spring of 1951, and it is hoped that observers with photocell equipment will get it.

The instrumental equipment for this observation was designed by Mr. D. D. Mears, under the supervision of Prof. A. E. Whitford, of the University of Wisconsin. Mr. Mears also supervised the field parties. The office computations were performed under the supervision of Miss Nora B. Moser. The work was done under the general supervision of Mr. F. W. Hough, Chief, Geodetic Division, Army Map Service. Thanks are due to the Commanding Officers of the Army Map Service, Col. W. H. Mills and Col. John G. Ladd, for their kind interest and support of the program, and to the Naval Observatory for much technical advice and assistance.

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Omer, Guy C., Jr. A hypothetical cosmological model.

Recent observational work indicates that Hubble's¹ reductions of surveys of red shifts and counts of nebulae may have to be revised. The six-color photometry of Stebbins and Whitford² has shown that the radiation from extragalactic nebulae is not that of a black body at 6000°K. Mr. Merle F. Walker has calculated from the six-color photometry the magnitude corrections due to red shift. This work has not yet been published but was communicated privately. In all cases these values are appreciably greater than the 4z approximation used by Hubble. The two-color photometry of Stebbins and Whitford² gives color indices for the E-type nebulae in the clusters which are linear with red shift but whose values are greater than would be expected from red shift alone. M. Schwarzschild has suggested that this may be due to a change with time of the stellar composition of these nebulae. Without further information about the consequent change of absolute magnitude with time for these nebulae, a definite model of the universe cannot at present be deduced from the observational data.

Let us consider a hypothetical cosmological model which we shall assume to be non-static but homogeneous with a present average density of 10^{-29} gm/cc. If the only important interactions between the nebulae are gravitational and if the curvature of space is small, it can be shown that the red shift should be essentially linear with distance for the present observational material. On the assumption that the change of absolute magnitude of E-type nebulae is proportional to