Muller has obtained this value by a careful analysis of the earth-moon system and the motion of other planets. If G were decreasing, the moon's mean angular velocity should decrease. However, the old recorded data makes use of the astronomical time rather than the more reliable atomic time. Also, tidal effects contribute towards the change of moon's mean motion. These and other smaller corrections must be properly taken into account before deciding whether moon's mean motion is indeed affected by a decreasing G. Muller claims to have taken these corrections into account in arriving at the above value.

Although a changing G will prove embarrassing to the gravitation theories of Newton and Einstein, some other theorists may feel happier. Brans and Dicke predict a decreasing G, and for a certain range of a parameter in their theory, the rate of decrease could lie in the error bars of Muller. The Hoyle-Narlikar theory is independent of any parameter and predicts a value $\mathring{G}/G = -H$, where H is Hubble's constant. For Sandage's recent determination of $H = -(5.6 \pm 0.7) \times 10^{-11}$ year $^{-1}$ there is a good agreement between Muller's result and the Hoyle-Narlikar theory. Dirac's cosmology appears to predict a faster rate of decrease than that observed but Muller is uncertain about the interpretation of Dirac's theory.

Muller suggests new approaches, like the lunar laser ranging experiment (LURE), to narrow down the error bars on $\mathring{G}/G$.

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Diffuse Interstellar Clouds

Apart from the observed dense molecular clouds, the interstellar medium is generally assumed (G. B. Field, D. W. Goldsmith and H. J. Habing, *Ap. J.* **155,** L149, 1969) to exist in two phases in pressure equilibrium with each other, the phases being (i) diffuse clouds with typical density $n \sim 10$ cm^{-3} and temperature $T \sim 100$°K and (ii) an intercloud medium with $n \sim 0.1$ cm^{-3} and $T \sim 10^4$ °K. A calculation of molecular hydrogen concentration in the diffuse clouds assuming uniform n and T (D. J. Hollenbach, M. W. Werner and E. E. Salpeter, *Ap. J.*, **163,** 165, 1971) shows that H_2 is mostly contained in the interior of these clouds as a result of the selfshielding of the dissociating ultraviolet radiation. This will then cause inhomogeneities in the structure of the cloud, which will in turn affect the H_2 concentration. It is therefore necessary in order to obtain information regarding the existing physical conditions in the clouds from the observations, to have a detailed theoretical model which will account simultaneously for the pressure thermal, electrical and chemical equilibrium of the cloud. One such calculation for an isobaric cloud has been recently reported by Glassgold and Langer (*Ap. J.*, **139,** 73, 1974). The isobaric assumption may be valid as the typical sound crossing time for the clouds observed by OAO—III seems to be less than the average life time of a cloud. Only H, H_2, C I, C II, electrons and grains have been considered, as other components probably do not affect the thermal properties of the clouds significantly. Inhomogeneous density and temperature distributions have been obtained for given values of pressure, cosmic ray ionization rate and interstellar ultraviolet radiation field. The effect of varying the various parameters involved has been studied. The observed C I column densities can be explained by this model with cosmic ray ionization rate smaller than 10^{-16} S^{-1}. This seems to be consistent with the results of Jura (*Ap. J.*, **191,** 375, 1974) and O'Dennell and Watson (*Ap., J.* **191,** 89, 1974). Grain photoelectron heating has been found to be very important to achieve the observed cloud temperatures of 80 °K. Though a qualitative agreement with the OAO—III observations of fractional H_2 abundance has been obtained, it is not possible to determine the values of various parameters uniquely. Detailed analysis of individual clouds are necessary for more quantitative results.

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The gravitational N-body problem was discussed by R. K. Varma while the gravitational interactions between galaxies were highlighted by S. M. Alladin.

Theoretical bases for ion-atom and electron-atom collisions were discussed by N. C. Sil and A. S. Ghosh. The talk by S. M. R. Ansari summarized the atomic collision processes of interest to astrophysicists.

The importance of the properties of ' ambiplasma ' for astrophysics, especially for the formation of galaxies, was discussed by P. K. Kaw. Yash Pal gave a popular talk on the ' Ancient Universe ', emphasizing the importance of the recent measurements of deuterium in interstellar space.

An important feature of the symposium was the panel discussion on the ' Astrophysics in the 1970s' which brought forth the most fruitful areas of interest in Astrophysics.

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