The center frequency of the receiver was crystal-controlled at a value equivalent to a radial velocity of +217 km/sec, with an accuracy of ± 0.02 km/sec and the channels were positioned at intervals of 7 km/sec, with individual bandwidths of 8 km/sec.

In the analysis of the records, the zero level and sensitivity calibration were established before and after each run for all channels. The ability of the digital methods of analysis to handle a great amount of tedious reduction automatically has made it possible to do some additional smoothing after recording, to increase the effective sensitivity.

The preliminary results corroborate the 1954 observations of Kerr, Hindman, and Robinson, as to the angular extent of the neutral hydrogen of the Clouds and the estimates of the mass of gas. In addition, the presence of a bridge of hydrogen, covering the area between the Clouds in the declination range from -72° to -76° , has been revealed, using the smoothing methods mentioned previously. In this case, the integrating time was effectively increased to 16 minutes and the effective bandwidth to 40 km/sec giving a sensitivity better than 0.1°K .

A feature of the observations is the "steep" leading and trailing edges of the emitting area of the Clouds at right ascensions of about 00^h30^m and 06^h15^m , respectively.

The peak radial velocity distribution was characterized by the striking simplicity of arrangement—two large regions of positive velocity occurred in low and mid-galactic latitudes with negative velocity areas between. The galactic polar caps down to $|b| \sim 40^\circ$ showed a great predominance of negative velocities. Part of this pattern is due to differential galactic rotation but two definite facts emerged from the observations: Hydrogen is flowing outward in the directions of the center and anticenter in the low and medium latitudes and is streaming in from above and below in latitudes $|b| = 90^\circ$ to $\sim 40^\circ$. The maximum radial velocities involved in these motions are ± 12 km/sec. The complete flow pattern could not be determined from the present investigations. The average rate of inflow in high latitudes was estimated very approximately as $1 \times 10^{-7} M_\odot$ per square parsec per year.

A Short Note on the Two Fixed Center Problem in Three Dimensions. GEN-ICHIRO HORI, *Yale University Observatory, New Haven, Connecticut*.—The classical result of the two fixed center problem in two dimensions is easily extended to the three-dimensional case. The result is applied to the motion of an artificial satellite under the gravitational field due to Vinti's potential. The reducibility of Vinti's potential to the two fixed center problem was suggested by Dr. Pines.

Observational Evidence and Proposed Test for the Mode of Star Formation. SU-SHU HUANG, *Institute for Advanced Study, Princeton, New Jersey*.—It is a well-known discrepancy that the fainter stars in new clusters, observed by Walker and by others, cover in the color-magnitude diagram a wide band above, but roughly parallel to, the main sequence, while the theory of gravitational contraction of premain-sequence stars would predict a single locus slanting away from the main sequence toward the low-temperature region in the H-R diagram (Walker, M. F., *Astrophys. J. Suppl.* 2, 365, 1956; Sandage, A. R., *Stellar Populations*, p. 149, 1958; v. Hoerner, 1960). In spite of a recent study by C. M. Varsavsky (*Astrophys. J.* 132, 354, 1960), who has tried to explain this discrepancy by the fact that the colors of these stars do not give reliable effective temperatures, we have found that the disagreement between theory and observation persists. Therefore, in order to understand the formation of the star and the evolution before its reaching the main sequence, we should search for, and study the distribution of, the infrared stars.

By assuming (1) a mass ($\mathcal{M}$)-radius, (R)-luminosity, (L) relation for the gravitationally contracting stars of the form

$$L = \mathcal{M}^\alpha / R^\beta,$$

with $\alpha = 4.6$ and $\beta = 0.79$ (Henyey, L. G., LeLevier, R., and Levée, R. D., *Publ. Astron. Soc. Pacific*, 67, 154, 1955); (2) E. E. Salpeter's empirical law of the distribution of stellar masses $d\mathcal{M}/\mathcal{M}^{1.35}$ (*Astrophys. J.* 121, 161, 1955); and (3) a uniform rate of star formation we have found that the premain-sequence stars are mainly distributed in the region of low effective temperatures, contrary to our usual understanding that the gravitationally contracting stars are dominantly located near the main sequence—an understanding which is true only for the unrealizable case of β approaching zero. Thus, if the star indeed is contracted from a condensation of huge extent, we will necessarily find a large number of infrared stars, say in the Orion nebula, or even in the solar neighborhood. Conversely if not many infrared stars were found in the search, we may have to introduce some new conception in the theory of star formation and in the early phase of stellar evolution.

Least-Squares Tables for Visual Binaries. JOHN B. IRWIN, *Goethe Link Observatory, Indiana University*.—In principle, a least-squares solution of a visual binary orbit should automatically and impersonally yield the best values of the elements of the orbit. This method, however, is seldom employed because it is so laborious; and this is so primarily because of the lengthy calculations necessary to eval-