MEAN DISTANCE OF STARS WHOSE RADIAL VELOCITIES, PROPER MOTIONS AND PARALLAXES HAVE BEEN DETERMINED.

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The following investigation was undertaken to answer the question,—Will the mean distance of the stars as determined from their proper motions and radial velocities agree with the mean distance as formed from the directly measured parallaxes?

The data for the parallaxes were selected from the list published by Kapteyn and Weersma in 1910*. For one hundred and ninety-five stars of this list, radial velocities were obtained from the Mount Wilson† and Lick Observatory‡ results. The proper motions of all these stars are very large, and indeed for the most part the stars were selected for parallax measurement on this account. The excessive magnitude of the cross motion may be due

1. to the proximity of the stars,
2. to the excessive speed,
3. to exceptionally large values of the inclination of the motion to the line of sight.

An examination of the data seemed to show that the first factor was by far the most potent. If we reject twenty-eight stars with exceptional velocities, over fifty kilometres per second, the remaining ones have a mean radial velocity very little above the average of the stars in general.

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*Groningen Publications, No. 21
†Ap. J. Vol. 39.
‡Lick Observatory Bulletin 214.