The Fixed (?) Stars

At a recent astronomical seminar, I was reminded by a speaker that our term, the "fixed stars" is not really correct. Stars do move across the sky, their motion being a combination of two measurable quantities, "radial velocity", or motion in the line of sight, and "proper motion", motion across the line of sight. These motions are extremely slow, although they can be measured with accurate astronomical instruments. To the unaided eye, however, the stars appear to be stationary, unless studied over a lengthy period of time.

Edmond Halley realized this, for he astutely observed that some of the stars were not in the positions assigned to them by the ancient Greek astronomers. He began a study to determine the movements that the "fixed" stars had made since the time of Ptolemy.

It can be seen that the movement made by the average star, during a man's lifetime, will hardly be observable, and I am wondering how many of us have actually seen a star move. There are certain stars whose motions are detectable in a relatively short period of years. These are short-period binary, or double, stars.

The observational procedure would be to observe these stars at two- or three-year intervals. During that time, the stars will have revolved a bit in their orbits, and the change in relative positions should be seen.

One such binary is 46 Tauri. It is easily visible in small telescopes since both components have visual magnitudes of 6.1 . The period of revolution is 7.2 years, so that you should see a change in just one year. The position of 46 Tauri is as follows: R.A. 4h10.9m, Dec.+07°35' . It is just south of Mu Tauri, which will be on most star maps.

Astronomers have been saying for years that the stars are in motion, but not one person in a thousand has ever bothered to prove it for himself. Through observation of a short-period binary, such as 46 Tauri, an interested person can demonstrate that the stars are not "fixed" and can follow their motion from year to year.

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