





be moved by earthquake or drifting land masses, or if for any reason its instrumental set-up should be unstable.

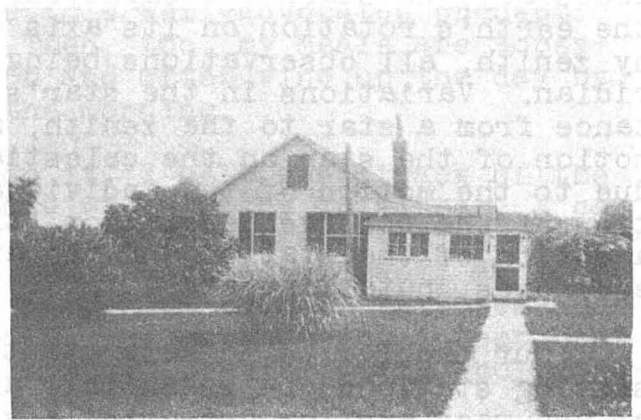
Let us assume that all stations are exactly on the same parallel of latitude and that a certain star tonight passes directly overhead of each one, in the zenith. If the star's own proper motion causes it to move to the southward on the celestial sphere it will be observed, say, one month hence, to pass to the south of the zenith by all of the stations. If, however, the earth shifts position with respect to an unmoved axis (unmoved with respect to space) and Gaithersburg shifts northward the star would again appear shifted to the south of the zenith of Gaithersburg, but such an earth shift would carry an observing station on the opposite side of the earth in the opposite direction (one side of the earth moves toward the pole, the other away from it) so that the star for the Japanese station would pass to the north, and not to the south of the Japanese station. A similar direction of shift takes place for all stars (after correction for individual star motions) at any given station, with an opposite direction of shift for all stars at a station located on the other side of the earth. Now in the case the earth's axis moves with respect to space carrying the earth along with it, the oppositely located stations will not only get oppositely directed shifts but there will also be an opposite direction of drift as between all stars in one section of the sky and stars on the opposite side of the sky as well, all stars not acting the same at any one station as in the case of station motion only (without axis motion).

Because of these differences, with the use of enough stations all observing the same stars under as nearly similar conditions as possible, it is possible to untangle the variation-of-latitude from other earth motions.

Of what value such knowledge is to us is discussed in another article in this issue entitled "Who Shot Those Peas?"



The meridian mark



The observer's home

Gaithersburg, Md.