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CHANGES OF LATITUDE

IN this era of changes of every description, the question of changes of position of our astronomical observing stations on the surface of the earth has recently become a live issue. The question is still an open one, and its ultimate decision may rest upon a comparison of the precision of the results of observation with the size of the changes predicted or adopted by geologists.

California has undergone some severe earthquake shocks, of which we commonly talk but little and endeavor to think not at all. Of the modern disturbances, that of 1906 was clearly due to a slip at the surface of the earth along a geological fault line. At the location of this fault the relative slip of the two opposite sides was as much as twenty feet in some places. There is no such evidence available for any other earthquake, but it may be assumed that other shocks in this coastal region were of similar nature.

In Japan, where some five hundred earthquakes of sensible character have been recorded in twenty years, the shocks are presumably not due to slips at the surface along geological faults.

The only extensive results of astronomical observations in this region are those at the Lick Observatory, where meridian circle work has been prosecuted for nearly thirty years, and at Ukiah, about a hundred and fifty miles northwest of us, where zenith telescope work has been carried on continuously for twenty years. There have been isolated zenith telescope determinations of latitude, but they would contribute little of importance to the discussion of progressive or abrupt changes, owing to the uncertain errors of the star declinations adopted.

For instance, the latitude of our instrument, as furnished by the U. S. Coast and Geodetic Survey in the early days, was 37° 20′ 24.48″.