Harold JEFFREYS

NOTES ON THE VARIATION OF LATITUDE

1. If the methods of observation are changed it is most important that there should be some period of overlap so that possible systematic differences can be determined.

2. Standard methods of solution depend on the supposition that the errors are independent. This is seldom quite true and sometimes very seriously false. It is very important that methods of reduction should be such as not to increase internal correlation arising in this way. Some methods of smoothing give a spurious appearance of smoothness with no increase whatever of real accuracy. A method of smoothing that does increase accuracy is given in my "Theory of Probability" and was used in the construction of the seismological tables.

3. There is a widespred belief among astronomers that their observations refer to the instantaneous axis of rotation. This is not fixed either with regard to the stars of the Earth. The axis of angular momentum is fixed in space so far as the so-called variation of latitude is concerned, and the observations refer to the position of the axis of figure relative to that of angular momentum.

4. The secular displacements of the pole that have been derived are comparable with the horizontal displacements in the larger earthquakes. If they are seismic the observations would be expected to show discontinuous changes which might be detected by comparison of different stations. (The displacement in the San Francisco earthquake of 1906 was about 8 metres, say 0".25).