

THE STABILITY OF CONTINENTAL BLOCKS IN SEISMICALLY ACTIVE
REGIONS

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ABSTRACT

In connection with the problem of continental drift some authors voice a supposition of the existence of progressive and rotational motion of continental blocks, particularly in seismically active regions. Azimuths of some terrestrial objects determined over long time intervals were used to investigate these motions. Naturally, the reliability of the result depends on the length of these intervals.

The axis of the meridian instrument of Uloug-Beg Observatory in Samarkand, installed 550 years ago (1420-30) is the most ancient meridian direction on the Earth. Using measurements made by the author in 1941, 1956, and present-day observations, it was found that the direction of the axis had moved through an angle of 7!5. Allowing for observational errors in the pre-optical period one can accept a change of 5' or 0!5 per year. To ascertain if the observed change is caused by rotation of the continental block or local deformation repeated measurements of azimuths of triangulation stations first measured forty years ago were made. The results show the absence of continental block rotation in the region of Middle Asia within a possible accidental error of $\pm 0!5$.

DISCUSSION

- S. K. Runcorn: Rotation of large plates associated with continental drift is of the order of 10^{-7} per year, but local rotation of small blocks associated with seismic areas may be of the order found from the ancient discrepancy of the meridian. May it not be that the region is just quiescent at present? Such motions are likely to be discontinuous but may add up to considerable values over 500 years.
- V. P. Shcheglov: This is a seismic zone. The effect is not a local rotation.