DISCUSSION

"MID-CONTINENTAL RIFT - A HYPOTHESIS"

D.K. Ghosh, Consultant, Engeol, MG-44, Sector-C, Aliganj Colony, Lucknow-226024, comments:

In a paper on 'Mid-Continental Rift - A Hypothesis' by M.V. Baride, (Jour.Geol.Soc.India.v. 47, pp. 419-423), a new hypothesis on the possibilities of the opening up of a Mid Continental Rift (MCR) in the southern block of the Indian Shield based on the background data on seismic centres, continental rift and seismotectonic studies, has been presented. The author is congratulated for this new approach. However, it does not record several earlier facts. The author has based his observations of tectonic interpretations due to locking of northernmost part of the Indian subcontinent resulting in the development of compressional forces and rotational movement of the Indian Block; a feature almost similar to the proposal of continental tectonics in the aftermath of plate tectonics made by me focussing on various tectonic interpretations on post-collision intra-continental tectonic model as against the commonly accepted conventional convergence and underthrusting model as a cause of movements leading to earthquakes. Following studies are necessary before attempting any forecast on the possible areas of earthquake susceptibility as the Indian Block is influenced by continental tectonics within the modified post-collision stress framework where the basic tenets of plate tectonics can not be applied now:

- to recognise various types of tectonic systems and stress fields with specific details of active or inactive features.
- to recognise the possible pattern of epicentre migration in a tectonic system and stress field.
- to explore the locations of stress accumulation followed by stress measurement.
- to attempt establishing earthquake rules of a region as the whole study is a very difficult problem which can hardly be resolved by geology alone.

M.V. Baride, replies:

What I have implied in my paper is a logical hypothesis. If the directional movements of the Indian subcontinent is considered, then there is every possibility that stresses may accumulate at any point within the limits as given in Fig. 3 of my paper. The Jabalpur earthquake may have been the result of this phenomenon.

It is rightly pointed out by Ghosh that once stress is released from a point, it takes time for accumulation. I have not stated that the earthquake would occur in the same place. The area spread over kms would be the places where stresses may accumulate if at all released elsewhere.

The hypothesis will be justified if the physics of stresses is considered.

This hypothesis is also applicable to the other continent movements and generation of earthquakes in recent past in Japan, Mexico etc. (under preparation).