

NEWSLETTER

New Concepts In Global Tectonics

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and D.R. Choi

FROM THE EDITORS

This Newsletter contains a number of very interesting contributions and reviews. These are about the structure of the Earth and its history and will stimulate discussion about some fundamental problems of the Earth. The papers require a re-assessment of the nature of the crust and the mantle and their relationship and a new understanding of the development of the Earth. Rezanov describes the main changes in the history of the Earth. He distinguishes the structure of the Archaean from the Proterozoic. The Archaean was initiated by a period of violent basaltic magmatism and terminated by major granite formation leading to extensive fractures separating stable massifs (cratons) and geosynclines. Deep water sediments were absent from this time. According to my analysis (Dickins, in prep), the Palaeozoic seems to be the time of mature geosynclines with the appearance of widespread flysch (deep water) deposits and widespread ultramafics reflecting the increasing thickness and brittleness of the crust.

Perhaps the paroxysmal crustal shortening periods represented by the geosynclines, have increased in intensity with the latest, the Alpine-Himalayan Orogenic Phase beginning from the mid-Cretaceous (Middle-Upper Albian) being the most severe.

The major fractures described by Rezanov apparently correspond to the world system of lineaments (deep fractures) which have been described by many workers which are here further studied by Choi. There is considerable evidence that these and the polygonal structures which they form date from early in the history of the Earth.

They are operating up until the present. Choi's work indicates that the deep earthquakes are associated with these fractures so that they represent structures both in the crust and mantle which as we indicated in "From the Editors" our last Newsletter bears out the conclusions of our colleagues Suzuki and Pavlenkova. Further Choi shows ultramafics are associated with these deep structures.

Rezanov describes the collapse of the continental areas with ocean floor subsidence in the Mesozoic associated with the second great epoch of basaltic magmatism. Our work based on primarily on accurate and reliable palaeontological and stratigraphical data and extensive multidisciplinary geological information (inter alia Dickins, Choi and Yeates, 1992; Dickins, 1993 and 2000; Dickins and Choi, 2001), shows this period of vast basaltic activity began at the Triassic-Jurassic boundary. It is associated with widespread crustal foundering along tensional structures and

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