A NEW MODEL ON THE GEOLOGIC EVOLUTION OF SRI LANKA

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A new model is put forward to explain the geologic evolution of Sri Lanka. The Highland Group is a highly metamorphosed assemblage of a marine deposited volcanic, volcano elastic and sedimentary rocks. These rocks were subjected to continuous compressional forces with peaks of intensive deformotion as evidenced by the polydeformation structures seen in the rocks (Berger and Jayasinghe, 1976). The trend of the major fold axes of the final deformation (D_3) shows a uniform variation along the Highland Group belt, for eg. in the northern part of the belt the trend is NE swinging continuously through a NS trend in the central to NW in the Southern sector. These fold axes show a later deformation as exemplified by this S-folding of the D_3 fold axes indicating a shearing movement of the blocks that compressed the Highland metasediments.

Charnockites of the Highland Group are probably early Precambrian Volcanics (Wickremasinghe, 1976; Jayawardena and Carswell, 1976). The trace element geochemistry of these rocks suggested that the parent material of the charnockites erupted with the Highland Group sediments as rocks of basaltic affinity in a converging plate environment (Munasinghe and Dissanayake, 1980)

The positioning of some spatial geologic features such as the shear zones (Vitanage, 1959), hot springs, gravity anomalies, ultra basic intrusion point to collisional tectonig as being the agent for formation of the Highland Group (Munsinghe and Dissanayake, 1979, 1980a).

It is suggested that the Highland Group formed in between two closing up blocks now represented as the eastern and western Vijayan and the present characteristics of the Highland Group formed due to a collision of these two continental blocks during the Precambrian.

References:

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