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CUDDAPAH BASIN AND PULIVENDULA AREA THEIR IMPORTANCE

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The interest in the Mid-Proterozoic Cuddapah Basin is recently revived because of the realization that such basins of the world mark a major stage in the history of the Earth, since their rock sequences and their environment of formation are different from the older Archaean examples. These basins are thicker and have a greater areal extent and have lesser volcano components compared to the older super groups. In these Mid-proterozoic basins an initial sedimentation together with rapid volcanic stage was followed by more prolonged stage of sedimentation. Generally metamorphism of these sequences is absent or unimportant. They are also characterized by the presence of red beds and micro fossils in the form of stromatolites. Mid-proterozoic basins contain in general, uranium mineralization in conglomerates, phosphorites in shales, dolomites and quartzites and lead-zinc mineralization in carbonates, shales, slates, phyllites and quartzites. The basins are believed to have been formed by thermal events in the crust, leading to block faulting or formation of aulacogens into which sediments were deposited in shallow marine environment which may be subjected to folding and thrusting due to later tectonic events. The Cuddapah basin is a very good example of the Mid-Proterozoic Basins representing generally most of their characteristics. It is one of the largest sedimentary basins in India with huge sediment thickness of about 10 kilometers with the geological history of about 1000 million years preserved in them.

The glitter of diamonds present in the basin drew the attention of the geologists in 1700s and early 1800s. The comprehensive work carried out by William King giving for the first time its stratigraphy and division of the formations into Cuddapahs and Kurnools and a geological map covering the entire basin stand out as a unique effort attempted single handedly. His memoir remains a classic work and his classification broadly unchallenged even today. The recent work of the Geological Survey of India mainly through Nagaraja Rao, Rajurkar, Ramalingaswamy and Ravindra Babu must be appreciated very much for the details that are presented and the large geological map that was brought out and for the attempt of revision in stratigraphy.

Most important contributions have been made on the geological and geophysical aspects of the basin or on parts of it. Attempts have been made to assess the time span of the basin through geochronology. In spite of these great efforts the understanding of the basic problems like the tectonic evolution of the basin are far from clear. Similarly the information on sedimentological aspects, geochemical data on sediments, and information on detailed local stratigraphy and structure, the phases of igneous activity and the process of mineralization is absent or very meager.

It is in this context that any attempts to promote discussions and presentation of the work done as a whole or on parts of it are most welcome. I would have been more happy had the title for the discussions of today and tomorrow. Is the "geology of the pulivendula area" instead of the announced topic. My aim is



saying that is not to decrease the importance of the mineral deposits but to highlight the classic area within Cuddapah basin. In this Pulivendula area covering a few square kilometers a typical stratigraphic sector is present with calcareous, argillaceous and arenaceous sediments, intruded by sills, along with the presence of lava flow. The presence of eparchean uniformity and other unconformities, sedimentary features of conglomerates, bedding and layering and triple marks, presence of structural features like faults, the occurrence of stromatolites and the presence of the classic composite sill which needs to be brought to the attention of petrologists of the world and the formation of asbestos mineral deposits through contact metamorphism and the occurrence of hydrothermal mineral deposits of barytes and the stratabound uranium mineralization all through up many problems for the scientist but present the features as clear as figures in the text books. The Pulivendula area therefore assumes importance as training ground for the young students. Every student of geology in India must have an opportunity to visit this classic Pulivendula area and appreciate and learn the various aspects of the rocks and their occurrences.