

HOW OLD IS THE VINDHYAN BASIN ?

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A broad sickle shaped east-west extending synclinorium in the north-central part of the peninsular India known as Vindhyan basin preserves ~3000 m thick pile of sedimentary rocks interbedded with volcanic ash at different stratigraphic levels. K/Ar dating of glauconites suggested an age range of ~1400 to 400 Ma. Rb/Sr ages of 1140 Ma for micas from the kimberlite pipes intruding the Kaimur Formation suggested old ages. If these dates were correct, the basin must have existed over a period much longer than the time span of the entire Phanerozoic. There is no way such a large basin could have survived for so long without being deformed. Near horizontal disposition of thick fluvio-marine sediments without major folding or deformation suggest a near steady-state sedimentation. Using modern sedimentation rate as the guiding factor and reducing this rate to half to accommodate time loss due to unconformities, the entire sedimentation should have lasted more than 100 Ma. Recent Ar/Ar dating of volcanic ash beds (with W. Frank from Vienna) from the basal Semri Formation suggest ~617 Ma. Discovery of sponge spicules and *Claudina* type forms in the uppermost Bhander chert seem to restrict the age span of the Vindhyan basin to ~600 and 550 Ma. Detrital micas and clays from the same and other parts of the Vindhyan basin with Ar/Ar ages between 900 and 1500 Ma suggest that all previous age data were related to the age of the source rock and were unrelated to the depositional ages.