Chapter Nine

SUMMARY AND CONCLUSIONS

In the first chapter after making an introductory statement, the area chosen for the investigation was introduced. A rapid survey was made of the existing literature on the pre-Vindhyan geology of Rajasthan. A short account of the physiography of the area under study and the scope of the present work were given.

In the second chapter a general picture of the pre-Vindhyans of Rajasthan was given followed by detailed descriptions of the rock formations in the area. It was shown
that the conglomerates, grits, arkoses and quartzites described by Heron (1953) as outliers of the Delhi System, do not show any discordance and they could very well be regarded as the basal Aravalli formations. Further, the limestone band in the western part of the area which was mapped by Heron as Raisal series was shown to be a broad band of limestone within the Aravalli phyllites and that no unconformity exists between the limestones and the phyllites. The meta-volcanics in the area mapped by Heron were shown to contain, limestone bands, para-phyllites and occasionally lenses of quartzites. It was also contended that the igneous rocks in the meta-volcanics could well be shallow sills or dykes cutting at a low angle.

In the third chapter the structural elements seen in the rocks were described. This was followed by a concise account of the structural evolution of the area which was traced with the help of minor structures present in the rocks. Three folding episodes were recognised. The first folds were low amplitude recumbent to reclined folds with their axes plunging ENE and their axial surfaces striking NNW. This was affected by a second folding in which the early folds were refolded on a north-south axis with east-west axial surfaces. These are also reclined folds. The third folding is also on a north-south axis with vertical axial surfaces. These third folds are generally open and rarely tight. Idealised sketches were
drawn to illustrate the superposition of the later folds on the early folds. Whether all the folding episodes belong to the Aravalli orogeny or whether the last phase belongs to Delhi orogeny was also considered. It was shown that in the present state of our knowledge this point cannot be adequately clarified.

In the fifth chapter, geometric analysis of the area was attempted. The area was divided into a number of domains for a detailed evaluation of the structure. It was shown that this geometric analysis largely reflected the last phase of folding and only in a few domains the first phase of folding could be recognised. It was also pointed out that in specific cases, the geometric analysis may not yield as much of an information as the study of the minor structures.

In the sixth chapter, the sedimentary structures seen in the rocks were described and discussed in detail. Some of the horizons were shown to have been deposited by turbidity currents. The conglomerates, grits, arkoses, etc. which were described as outliers of the Delhi System by Heron, were shown to be possible representatives of the littoral zone sediments deposited in the Aravalli geosyncline. The limestones similarly were shown to be members of an orthoquartzite-carbonate association. The environment of deposition of the sediments was discussed at some length.
In chapter seven, petrographic descriptions of the rock types were given.

In chapter eight, the broad stratigraphy of the different units was discussed. Conflicting opinions expressed about the B.G.C. being the basement of the Aravallis have been enumerated. It was pointed out that it is premature to pass an opinion for the whole of the B.G.C. As far as the area under study is concerned, it was shown that the B.G.C. does appear as the basement of the Aravallis. The position of the Aravalli, Raiolars and Delhi was also discussed. The conglomerates, grits, etc. (Delhi outliers of Heron) have been shown to be the basal Aravallis on field, structural and sedimentological grounds. Likewise the limestones (Raiolars of Heron) on the western side of the area were shown to be part of the Aravalli System. Radiometric ages of the pre-Vindhyan rocks of Rajasthan were tabulated and it was shown that the data are inadequate to be of any great consequence.
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