ABSTRACT

The metasediments including the pelitic schists, quartzites, calc-silicate rocks and marbles are regionally folded by $F_2$ into a number of tight antiforms and synforms with NNE-SSW to NE-SW trending axial traces. Two earlier sets of folds $F_0$ and $F_1$ and a later $F_3$ warp make the fold geometry more complex. The $F_0$ folds are occasionally seen as minor isoclinal, rootless, intrafolial folds with the development of an axial plane schistosity $S_2$ which along with the bedding $S_1$ ($S_1 = S_2$ in most part except at the fold hinges of the $F_0$ folds) serve as the form surface for the later folds $F_1$, $F_2$ and $F_3$. $F_1$ folds are tight to isoclinal and are rotated by the regional $F_2$ folds. The quartzite layers to the west of the village Pur is folded locally into a cylindrical fold (synformal) rotating the minor $F_1$ fold axes in a small circle (on stereogram) with the angular relation $B_1 \wedge B_2 = 46^\circ$, $B_1$ and $B_2$ being the fold axes of $F_1$ and $F_2$. With this exception, the rocks are generally folded into macroscopic non-cylindrical (conical) $F_2$ folds with variable $B_1 \wedge B_2$ relations. The $F_3$ warp brings about the swerving of the general strike of the rocks which is NNE-SSW to NE-SW.

Measurements of the megascopic and mesoscopic $F_1$ and $F_2$ folds give an idea of the mechanism of folding which is mostly flexural slip aided by flattening, uniform or differential.
Norite and dolerite bodies intrude the country rock and are partially affected by the fold movements. Metamorphics occur in the eastern part of the area and are now represented by amphibolites and hornblende schists generally with a prominent schistosity developed in them.

Amphibolite facies of metamorphism is indicated and the highest grade is shown by sillimanite zone. Partial melting of the rocks to form migmatites in the northern part of the area indicates the highest temperature condition of the metamorphic environment around 650°C at ~68 Kb pressure. A later retrogression of high grade rocks to chlorite-sericite assemblage is found to occur in a shear zone to the west of Pur.