CHAPTER III

EARLY WORK IN THE PRESENT AREA

3.01 The first published account of the region that includes the present map area is by B.C. Gupta (1934). He gives a brief account on the rock formations and structure of the Bhilwara area in the GSI memoir entitled "Geology of Central Mewar". Here he has classified the rocks of the present area into the Aravalli system and the Raialo series, separated by an unconformity which is represented by arkose grits with occasional conglomeratic bands. He mentions the presence of good exposures of such rocks in the steep ridge forming a close curve west of Pur (25°18'00" : 74°32'45"). Among the 'Aravallis' he includes the amphibolites and hornblende schists which occur in the plains surrounding the Bhilwara town (25°21'00" : 74°38'00"), the garnetiferous mica schists and the intercalated quartzites. The Raialos include basal arkose grits with occasional conglomerates, quartzites, ferruginous quartzites, calc-gneisses and the limestones. He mentions occurrences of the ferruginous quartzites in the high ridges striking NNE from about 2 miles (3.2 Km) WNW of Pur and continuing to east of Dhulkhera (25°24'00" : 74°35'00") to the NNE where the height and the width of the ridge are diminished and the rock grades to a dark grey quartzite with quartz, mica and green amphibole as constituent minerals. The chain of high hills, striking NNE-SSW between Suras (25°23'00" : 74°33'30") and Jipi
(25°25'00" : 74°35'45") is formed chiefly or highly ferruginous quartzite. Calc-gneisses occur to the north of Jipi. The Raialo limestones are almost always associated with the quartzites and such occurrences to the west of Pandal (25°21'00" : 74°34'45") show repeated folding. He presents a section through west of Pandal to demonstrate the structure of the limestone - quartzite association. The section (Plate 3, Inset) has been described by him in the following manner:

3.02 "Proceeding W.W.W., that is, across the strike from Pandal, the section is as follows: (1) the Pandal fort is on a low ridge of limestone, the dip being 60° W.N.W.; (2) it is succeeded by a low granite ridge; (3) then comes a band of highly altered gritty quartzite, the ground to the west being a cultivated strike-valley, mostly soil-covered; (4) in the low ground east of the next ridge, there is a trap dyke which runs north-east across the cultivated tract; (5) this is succeeded westward by grey quartzite forming foot of (6) the next limestone ridge, flanked on the west by (7) a felspathic, foliated quartzite; then after a narrow soil covered strike valley, (8) the quartzite reappears forming the foot of (9) the third ridge of limestone."

3.03 Baja Rao (1970) considers the metasediments and the metavolcanics (hornblende schists) of the present area to belong
to the Pur formation of his Bhilwara Group which is older than the Aravalli Group. He writes "a repetitive sequence of garnetiferous mica schist, quartzite and calc-silicate rocks overlying the hornblende schist can be traced from Pansal (= Pandal, 25°21' : 74°35') (westerly) to Bagor (25°22' : 74°23')" and "widespread granitic influx has affected all the rocks of the formations particularly the schists. Migmatites, bands of gneisses, granites and pegmatites are present in abundance".

3.04 The age of the Bhilwara Group is thought to be over 2500 million years, while the base of the Aravalli sequence may extend to 2000 m.y. (Raja Rao, 1971).

3.05 K.K. Basu (1963, 1966 cited in Raja Rao et al., 1971) has recognised folds of two distinct geometry in Pur area - (i) isocline, almost reclined folds plunging about 65° towards N60°E to N70°E, their axial plane trending almost north - south and (ii) almost upright folds plunging NNE or SSW superposed on the reclined folds.

3.06 Sen (1970) in his paper entitled "Some problems of Pre-Cambrian geology of the Central and Southern Aravalli Range, Rajasthan" narrates briefly the work done by Das Gupta (1967, unpublished M.Sc. thesis) in Pandal (25°21'00" : 74°34'45") area - "Recent mapping by Das Gupta has not revealed any break anywhere in this continuous succession of pelites, marbles and
psammites having a band of magnetite quartzite, grouped into Aravallis and Raialos by Gupta. Bedding or banding ($S_1$) yields the first generation fold $F_1$ which occurs here as highly appressed dead folds. Well formed axial plane cleavage of this fold constitutes an important regional planar structure yielding the regional fold $F_2$ seen in the map pattern. $F_2$ plunges 40° to 63° towards NNE to ENE. There is a third set of folds $F_3^*$ which is a broad warp (Das Gupta, 1969).