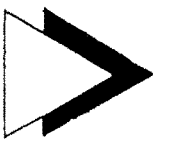
INTRODUCTION



Panoramic view of the study area looking north of Danta

INTRODUCTION

PURPOSE AND SCOPE

Heron and Ghosh (1938) in their classical work has putforth a very elaborate geological framework for the Pre-Cambrian rocks of North Gujarat. They had attempted to correlate the various occurrences of metasedimentaries, basic and granitic rocks to the successive well defined events in the overall geologic evolution of Rajasthan and their work till the date, remains an important source of information on North Gujarat. The rocks exposed in Danta area belong to Delhi Supergroup, which are southwest extension of Delhi rocks

exposed in Rajasthan. The geology of North Gujarat still poses numerous problems which are not fully understood. Considerable uncertainty prevails regarding the age and metamorphism of the various metasedimentary sequences. The basic igneous rocks also need a detailed reinvestigation.

All along this belt there is general consensus about increase in grade of metamorphism i.e. from green schist facies in North Rajasthan to granulite facies in Southwest Rajasthan and Gujarat through amphibolite facies in Central Rajasthan. But so far as age of these high grade metamorphics is concerned, the previous workers' observations are equivocal and indicate their age to be either Delhi or Pre-Delhis or Pre-Aravalli. These findings prompted the author to lend credence to this view and to investigate the complexities of deformational history vis-a-vis metamorphism both of which have left imperceptible vestiges in these rocks.

Recent studies in the adjoining part of the study area i.e. northwest of Danta furnished a new data on the Delhi metasedimentaries and associated granitic and mafic rocks in the part of North Gujarat. The studies of Desai et al., (1978) have brought number of structural and metamorphic complexities which were not visualised by previous workers. According to them the part of the metasedimentaries (mainly Ajabgarh Group)

metamorphically comprises a low pressure granulite province. Further they opined that, the olivine and hypersthene bearing rocks did not represent post-Erinpura basic activity but constitute a high grade metamorphic assemblage of charnockitic affinity.

Danta area, forming only a small portion of the North Gujarat Pre Cambrian terrain, comprises a geologically crucial area wherein clues to many confusions could be obtained. In the proceeding chapters, the author has putforth a critical appraisal of deformational history and have also dealt with the metamorphic facies conditions coeval with various deformations and concomitant igneous intrusives.

LOCATION

Banaskantha district lies between 23° 35' to 24° 23' North latitudes and 71° 0' to 73° 0' East longitudes on the banks of the Banas river. The district is in the northwestern part of the Gujarat State. In the north it is bounded by Marwar and Sirohi area of the Rajasthan state, in the south by the Mehsana district, in the east by a part of Sirohi and Sabarkantha districts and in the west by the Rann of Kutch, which forms the frontier with Pakistan. The shape of the district resembles a gun with a small barrel.

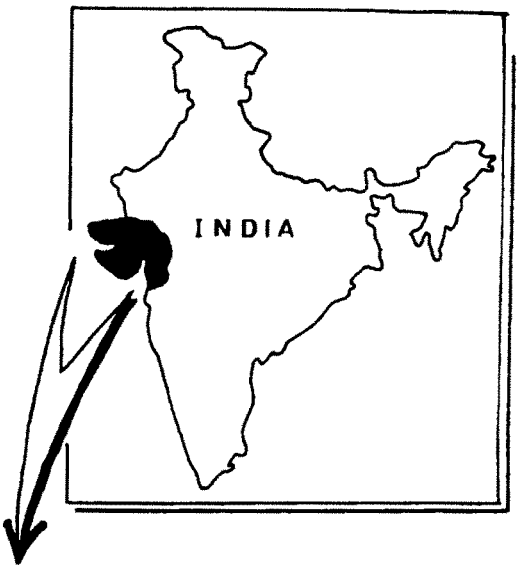
The study area (Fig.I.1) geographically lies between 24° 3' to 24° 15' North latitudes and 72° 45' to 72° 53' East longitudes forms northwestern part of the Gujarat state and comprises 680 sq.km area. Dantia or Dantoriya vir, was the founder of this ancient town which was existing in 16th century. It was the capital of former Danta state. It enjoyed special previlege of having within its territory the famous shrine of goddess "Ambaji". Kuvarsi, Kanbiavas, Vajapur, Nedardi are the small hamlets scattered all over the area.

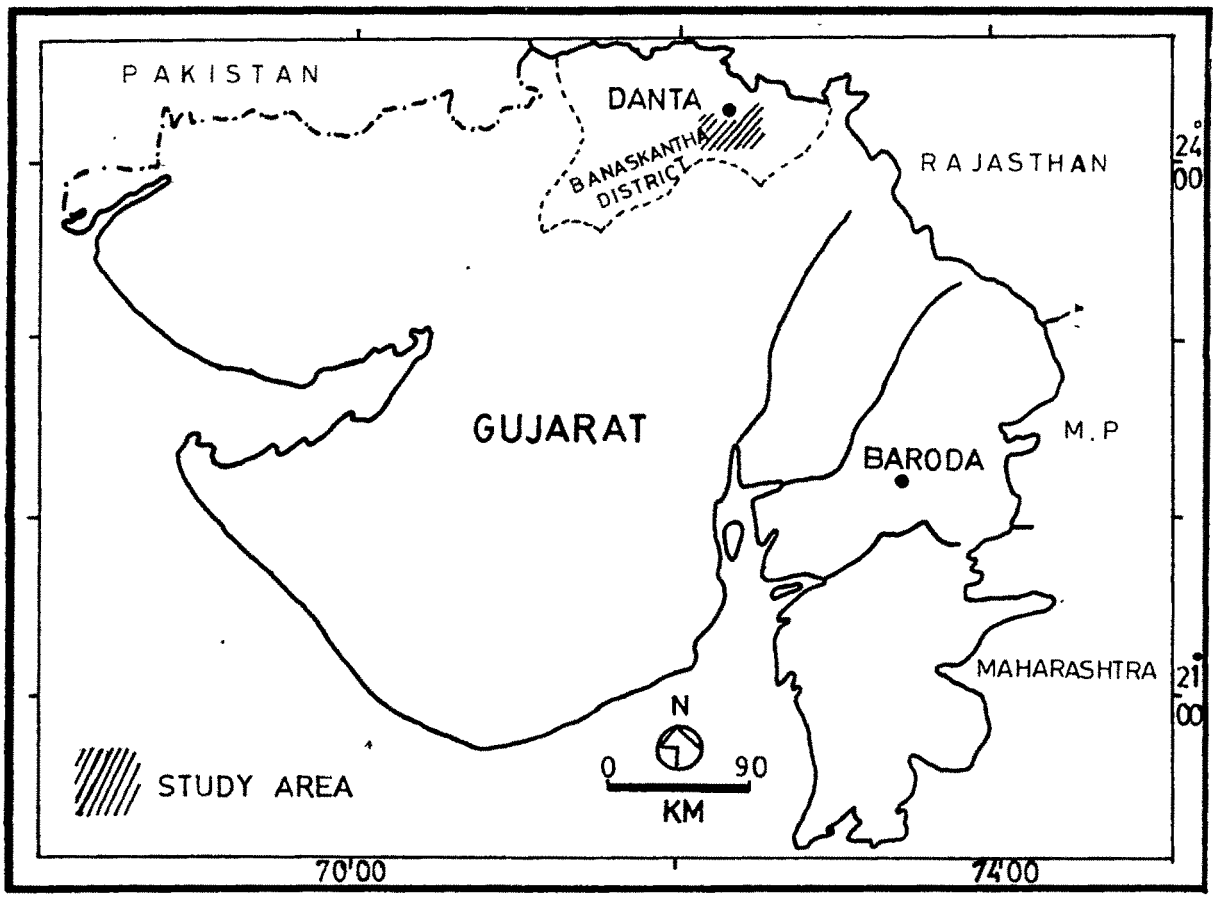
COMMUNICATION

There are three all weather motorable metalled roads connecting Danta with Ahmedabad (via Khedbrahma), Palanpur and Visnagar (via Kheralu). Ambamata being a famous pilgrimage centre, all the important cities and towns of Gujarat are connected with Danta by the state transport buses. The deep interior parts can be approached by jeeps during dry seasons. The area has a number of unmetalled roads and tracks connecting Ambaghata, Kuvarsi, Vasi Road etc. The hilly terrain is criss crossed by a number of foot paths. Palanpur which is situated 30 km south of Danta is the nearest railway station on Ahmedabad-Delhi meterguage railway line.

Fig. I-1

LOCATION MAP





PHYSIOGRAPHY

The area is rather hilly and the topography is characterised by the presence of several steep and rugged peaks. As a whole the district is sandy plain with few places having sandy hills with valleys of black clay between them. The eastern part of Dhanera taluka together with the northeastern part of Palanpur taluka and the entire area of Danta and Vadgam talukas feet as nice cap placed on the Aravalli range of mountains.

Danta taluka is considerably mountainous and consists of a series of hills having varying degree of height. The important hills are Harivat, Kantvan, Ghodivalo, Rakhepal, Dharso, Kirmal, Manekanth, Churmana, Gabbar, Menager, Bhadramal, Bhenso, Koteshwar, Arasur. The rest of the area consists of linear hills and ridges ranging in height from 10 to 50 m or more from the ground level, The southern portion is comparatively less rugged. The ridges run NE-SW in the central part while they extend in E-W direction in the southern part of the area. The topography is essentially controlled by the lithology and structure of the area. The granitic rocks form prominent peaks. High to low linear ridges are characteristic of the calc-gneiss country and low hillocks with shallow valleys are typical of the pelitic and semipelitic terrain. The three major rivers are Arjuni, Saraswati and Kuarka are ephemeral.