CHAPTER I

INTRODUCTION

The Tertiary or Cainozoic Era happens to be the most interesting in the world stratigraphy because of the vast orogenic and diastrophic movements and widespread physical, palaeontological and architectural changes the earth has undergone. It is during this phase of the geologic time scale that India attained its present sculpture.

Systematic geological studies of the Himalayas were taken up more than a century ago with the setting up of the Geological Survey of India in 1851. For the first six decades, interest was mainly confined to stratigraphical and palaeontological aspects and thereafter attention was diverted to the study of their structural setting. The Himalayas have been divided into seven regional-geological and geographical units (Burrard and Hayden, 1934; Bordet, 1961 - vide Gansser, 1964, p. xiv).

i) Salt Range: - The mountain range comprises the highly fossiliferous rocks of palaeozoic to Tertiary age and stretches for about 200 km.

ii) Karakorum: - The Karakorum connects the western Himalayas with the Central Asiatic ranges. This high mountain belt extends for over 400 km. in length.
iii) Panjab Himalayas: - The Panjab Himalayas are bordered by the Indus and the Sutlej rivers and include the Kashmir and Spiti regions. The mountain chain is 550 km. long.

iv) Kumaon Himalayas: - The Kumaon Himalayas stretch for 320 km. and lie between the Sutlej and the Kali rivers. Garhwal Himalayas and a part of Tibet are included in this sub-division.

v) Nepal Himalayas: - The Nepal Himalayas extend for 800 km. and are bordered by the Kali River in the west and the Tista River in the east.

vi) Sikkim/Bhutan Himalayas: - The Himalayan range of Sikkim and Bhutan stretches for a distance of 400 km.

vii) NEFA Himalayas: - The NEFA Himalayas comprise the range between Bhutan and Brahmaputra gorge and extend for about 400 km. in length.

Gansser (1964) proposed four longitudinal divisions of the Himalayas, i.e., Sub-Himalayas, Lower Himalayas, Higher Himalayas and Tibetan Himalayas (Tethys Himalayas). These divisions (Text Map 1), however, correspond roughly to the Siwalik foot hills, Lesser Himalayan zone, Great Himalayan zone and Trans Himalayan zone of earlier workers.
Medlicott (1864) classified the Tertiary formations exposed between the Ganges and Ravee into three divisions - Lower, Middle and Upper. The Upper and Middle divisions constitute the Siwaliks and Nahans, while the Lower Tertiary division includes the Subathus, the Dagshais and the Kasaulis (Text Table 1).

Lower Tertiary rocks have been previously studied by such doyens of geology as Medlicott (op. cit.) and McMahon (1883). Recently with the expansion of oil exploration programmes and setting up of the Centre of Advanced Study in Himalayan Geology at the Panjab University and other institutions of Himalayan Geology, the Tertiary geology is being studied in great details.

The Lower Tertiary rocks of the Panjab Himalayas pose a series of problems to the students of Tertiary geology. The major problems associated with these rocks are:

1) Mutual relationship between the Subathus and the Dagshais. (Different views have been expressed to assign conformable, unconformable and tectonic contact between the two series).

2) Stratigraphic status and age of the Lower Tertiary sequence. (The Subathus, the Dagshais and the Kasaulis have been described as group, series and stage. Some workers have assigned such precise ages as Helvetian, Burdigalian,
etc., whereas others have mentioned only the Lower Tertiary age for whole of the sequence).

iii) The provenance of the Lower Tertiary sediments has not been worked out so far. (Records, available, are not based on extensive petrological and sedimentological studies).

iv) Environments of deposition of the Lower Tertiary sediments.

With a view to investigate these problems the author studied the Lower Tertiary rocks of the Simla Hills in the Panjab Himalayas with special emphasis on their stratigraphical, petrological and sedimentological aspects for his doctoral thesis.

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