CHAPTER II

GEOGRAPHY AND GEOMORPHOLOGY

2.1. TOPOGRAPHY

The area is hilly with varying altitudes ranging from 5175 feet (1516 m) in the south-west near Bynther to 5957 feet (1815 m) in the north-east near Nongbri (Fig. II). The average height of the area is 5000 ft (1523 m) from MSL. It exhibits the peculiar topographical features of Precambrian terrain. Being a part of Shillong Plateau, the area experiences heavy rainfall during the monsoon season which affects the topography. Due to prolonged denudation, the elevated remnants now represent relict type of mountains.

The area witnessed repeated upliftment and submergence since the Precambrian times (Krishnan, 1968) and the present erosional process has been continuing probably since the upliftment at the end of the tertiary sedimentation. The topography is, thus, a rugged one, as original surfaces were trenched and dissected by prolonged erosion.

The rock types of the area control the topography. In the western part of the area where the various gneisses of the basement complex occur, the topography is undulating with gently elevated hills and narrow, often slightly elongated valleys. The eastern area is dominated by various schistose rocks with more resistant quartzite and calcareous rocks in
them. The resistant rocks stand out as elongated ridges trending NE-SW and the less resistant schistose part being occupied by elongated valleys. The hills slope steeply making the area difficult for field mapping.

At places the exposures are overlain by the products of weathering and erosion. Differential surface features are largely the result of differential resistance offered by the country rocks to the agents of denudation. This is evident from the fact that the gneisses and quartzites invariably mark the locations of higher elevations while the other metamorphic rocks lie along the valleys or are marked by low flat topped hillocks.

2.2. DRAINAGE

The area is dissected by a number of streams and rivulets. These generally originate in the hills and flows down the slopes. They usually form a dendritic drainage pattern (Fig. II). Many of the streams and rivulets are seasonal and their volumes of water decrease considerably in the winter season.

The main streams are Kynshi, Um Dingshit, Umlyngskhoin and Wah Nimiau (Map 1), of which Kynshi is the largest. The Kynshi stream rises near Mairang and pursues a south-westerly course in an ever deepening gorge till it leaves the area near Kynshi. Um Lyngskhoin rises near Nongspung in the south and
flows northward till it joins with the Kynshi near Bynther. Um Dingshit and Wah Nimiau, two important tributaries of Um Lyngskhoi, near Mawmaram and Nongbri respectively in the south-eastern part of the area and flow south-westward with their courses following the trend of the country rocks. Other streams of the area are small, for the larger streams trenching the plateau only permit their receiving water from a restricted area.

2.3. CLIMATE AND VEGETATION

The area comprises a part of the tropical belt and lies on 25° N latitude. The climate of the area differs from that of the Brahmaputra valley mainly due to its high relief which in general makes the climate very salubrious. The climate of this area is bracing due to the high altitude leading to the prevalence of moderate temperature. This region experiences very cold nights in the winter with temperature going down to 3°C. Its summer temperature rises to about 26°C. During mid winter (December-February) the area usually experiences frost although snow-fall is unknown. The most interesting climatic characteristic of this part is the very high rainfall with an average annual of 7196 mm. Cherrapunji-Mawsynram region, which experiences world's highest rainfall with 13,923 mm, lies to the west of Mairang. The remarkable features of the monsoon is the heavy precipitation
with a very high amount of relative humidity which starts in
the month of June and continues up to the middle of October.
The best time for undertaking field work is from January to
mid-April when the area becomes dry and ground becomes clear
of overgrowth.

The distribution of vegetation is more dependent
on the topography than on the geographical location of the
plateau. This fact is clearly seen on the western part of the
plateau which is covered with dense bamboo forests encouraged
by its exposures to the rainy south-west winds and by its
comparative protection from the cold northerly gales. The
geology of the area does to some extent affect the vegetation.
The country underlain by crystalline rocks is invariably more
thickly clothed with forest than that underlain by other
younger rocks. The gneissic rocks have usually thicker soil
cap on it and on the thickness of the soil largely depends
the distribution of vegetation.

Dense forest occupies all the valley slopes and
the plateau edges. Some of these slopes are living herbaria
and show a wonderful succession of different floras from the
tropical growth to the temperate plants on the plateau. The
vegetation is represented by pine trees (Pinus khasiana),
shrubs and thorny bushes. They are occasionally replaced by
tropical plants such as sal (Shorea robusta), teak (Tectona
grandis), bonsum (Phoebe s. sp), gomari (Gomelina arborea)
and varieties of chempa (michelia champaca), which form the bulk of the timber growth of the area.

The chief crops are rice and potato on the northern and oranges and pineapples on the southern slopes. The inhabitants apply contour cultivation and grow mainly rice, skilfully irrigating beautiful terraces by indigenous system of irregular channels which are fed by water drawn from long distances.