CHAPTER VIII

L A T E R I T E S

As in other parts on the West Coast, in the study area also, laterites are very common and more than half of the rocks here are covered with this residual formation. Lateritic rocks are conspicuously seen on the hillocks near Aghnashini, Tadri, Gokarn and Manjaguni. The cities, Ankola and Gokarn are also situated over the lateritic capping. At most places in the above mentioned localities, the laterite occurs as dissected patches.

The laterite formation in this part is seen at all levels, from as low as coastal areas to heights of 215 metres (Madangeri and Shirur). Further east, outside the present area, laterites are noticed capping the rocks at still greater heights.

The lateritic terrain is devoid of vegetation, and exhibits an almost barren landscape. Only a few thorny shrubs and grass is seen to grow sporadically.

TYPES OF LATERITES

In the Ankola-Gokarn area, laterites belong to two following types: (1) Massive homogeneous laterite and (2) Conglomeratic non-homogeneous laterite.

Massive Homogeneous Laterite

It is a dark yellowish to brownish, fine grained more or less porous rock of earthy nature. On the surface, the laterite shows dark to dark brown colour, while at depths it is seen to be brown, pink and yellowish with white patches of aluminous matter. The rock contains abundant cavities of irregular shapes and sizes. These cavities vary from a few milimeters to about 4 cm in diameter and are a few cm to 20 cm long. These cavities

tend to have quite often a more or less vertical orientation and ferruginous matter is seen forming an encrustation or lining along the cavities. However, in many cases clayey matter as well as aluminous matter is seen filling up such openings. These cavities tend to become scarce on going deeper.

This type of laterite shows 'in situ' formation from the underlying parent rock. There are very good exposures where one can see clearly the change over or gradual formation of laterite from the pre-existing gneissic and granitic rocks.

A few sections ideally show the various stages of formation of laterite from the underlying rocks. Immediately above the bedrock a zone of decayed or altered parent rock is recorded. Then above this, occurs a zone of soft aluminous or clayey matter (lithomarge); overlying the lithomarge is a layer of soft reddish brown or pink or yellowish brown ferrous oxide mixed up with clayey and aluminous matter. At the top occurs laterite with a hard cover of ferruginous matter. The cavities are seen commonly in the upper portion upto a depth of about 2 to 3 metres and are only rarely seen below 5 metres depth.

The thickness of these above mentioned layers or zones vary from place to place. In general the thickness of material overlying the bedrock varies from 1 metre to 20 metres. The accompanying sketches (Fig. 12) would give some idea how these thicknesses vary in different parts of the area.

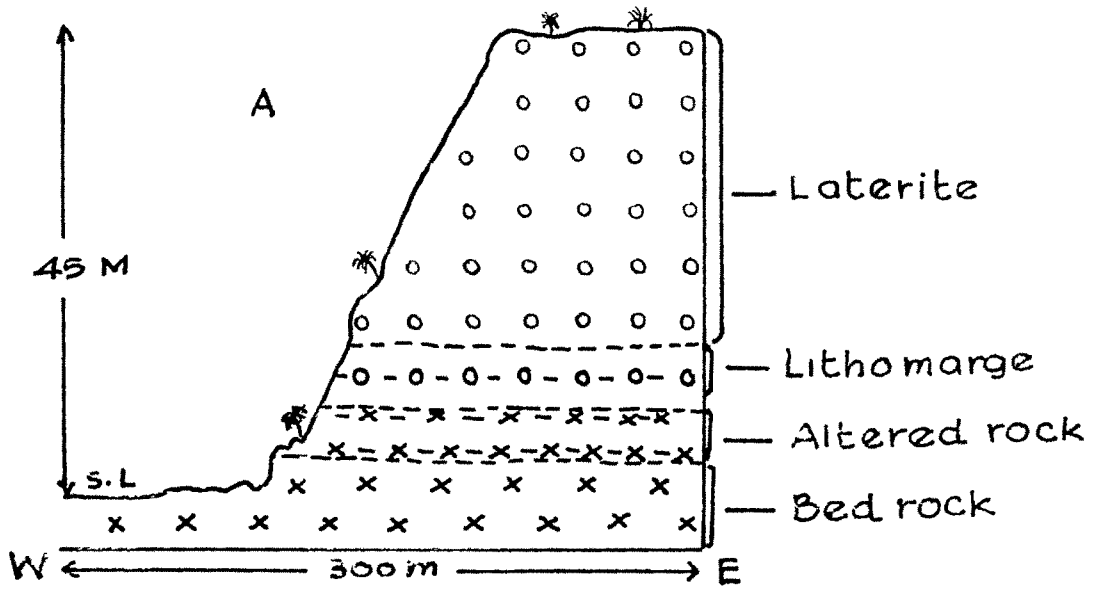
Conglomeratic Nonhomogeneous Laterite

The second variety consists of an admixture of rocks and mineral matter embedded in a lateritic soil. Such a variety often contains fragments of rocks of the surrounding area and pebbles of quartz, and appears more to be detrital in nature. It is commonly found along the slopes of hills and that too rather superficially. This lateritic variety is less massive, less homogeneous and contains higher amount of quartz and products of mechanical disintegration embedded in the ferruginous matrix.

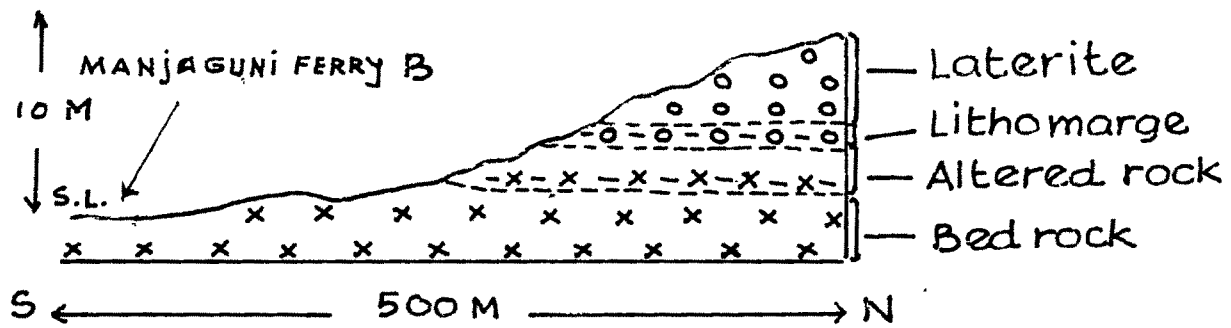
The prevalent colour of the rock is dark brown or red brown. Cavities are present but are rather smaller in sizes and in most cases are filled with ferruginous and occasionally with clayey matter. In the boulders seen at Manjaguni and Madangeri, pebbles

FIG.12

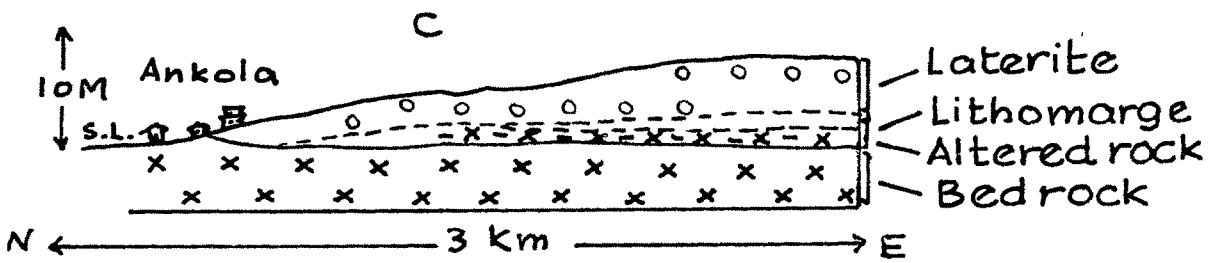
LATERITIC SECTIONS



(A) Section at Kudle beach



(B) Section at Manjguni



(C) Section east of Ankola.

of quartz measuring (1 cm to 4 cm diameter) are seen embedded in the lateritic soil. In the lateritic masses of this type occurring near Ulvare (Madangeri), lumps of iron ores are common.

ORIGIN OF LATERITES

No attempt has been made by the author to investigate the origin of these somewhat problematic rocks. However, there is little doubt that the lateritic rocks of the Ankola-Gokarn region have originated from the underlying granitic and hornblendic rocks. At most places they are 'in situ' and only in some localities detrital type of laterite is seen. The formation of laterite from the above mentioned rock appears to have taken place under somewhat tropical weather conditions so common along the west coast of India. Alternative dry and wet seasons and adequate rain fall (about 300 cm) must have resulted in the breakdown of the minerals which had constituted the rocks. Due to various physico-chemical reactions and weathering conditions the alkaline matters was removed (leached out) from the parent rocks, thus allowing for the concentration of oxides and hydrated oxides of iron and aluminium.

The Indian laterites have been classified as "High Level Laterites" and "Low Level Laterite" by Oldham (1893, pp.369-90). He states that the high level laterite is generally seen at elevation of over 700 metres and is found capping the hills and plateaus of central and western India. This 'High Level Laterite' is chiefly developed on the Deccan Plateau. While the Low Level Laterite occurs on the coastal lowlands as isolated patches. The laterites of the study area, obviously fall under the category of Low Level Laterite of Oldham.

Taking into consideration the mode of origin, the High Level Laterite would include laterites occurring 'in situ', while Low Level Laterite would be mainly transported and detrital.

But in the Ankola-Gokarn area the words 'high level' and 'low level' have no meaning [redacted] in relation [redacted] to the altitude, because the high level type laterite, as mentioned by Oldham could be found even at very low altitude- as less as at 10 to 25 metres above the sea level, and the low level type laterite could be seen at 500 to 750 metre altitude.

AGE OF LATERITES

The formation of laterite in this part might have started during the Tertiary period as in other parts. Due to lack of rock types other than those of Archaean period in this region it is very difficult to establish the age relation of laterite. Pascoe (1930, p.55) states "the sequence ending with the commencement of the Tertiary Era in Peninsula closed with the High Level Laterite which began to form on the surface of the Deccan Trap sheets and has probably gone on forming ever since."