CHAPTER VI

SUMMARY AND CONCLUSION

The Indian lateritic bauxite belt is one of the seven most important lateritic-bauxite belts of the world. This belt is mostly confined to southern India. Almost all bauxite deposits of southern India are associated with laterites which occur on high plateau or cappings on the hill ranges of Peninsular India.

The high level lateritic bauxite occurs in the Eastern Ghats and bauxite occurrences in Orissa and Tamilnadu belong this group. Sizeable reserves of bauxite have been proved in the High-Hill ranges of the Nilgiris, the Palnis, the Shevaroys and the Kolli-malai Hills in Tamilnadu and Eastcoast bauxite in Orissa. In contrast to the bauxite derived from basalt of Deccan plateau, bauxites of Tamilnadu have low iron content. The Kollimalai Hills, situated 45 KM SSE of Salem Town has been explored by Madras Alumini um Company (MALCO) and mining activity has been undertaken since 1975. As the bauxite deposit of Kollimalai Hills has less deleterious and easily removable impurities, it is being used for the extraction of alumina by MALCO in their factory at Mettur. Even though the
EXPLANATION OF PLATE - XIII

Fig-1 & 2: Stack of lateritic bauxite deposits of the Kollimalai Hills.
alumina content ranges between 40 to 51% (Plate-XIII, Fig. 1 & 2) which is considered to be grade II and grade III of I.S.I. Specification, it is suitable for the extraction of aluminium metal.

The distribution of combined silica and iron in bauxite deposit is primarily due to origin of bauxite deposits. Therefore, a detailed geological study of bauxite deposit of Kollimalai Hills has been undertaken by author to throw light on the distribution of troublesome impurities present in bauxite deposit of Kollimalai Hills.

In Chapter-I, the distribution of lateritic bauxite deposits and deleterious impurities present in the bauxite ore are dealt. Previous literature is discussed in detail. The methods adopted for field geological mapping and petrological studies used for mapping technique are also discussed.

The detailed account of geomorphic significance is dealt in chapter II. The author has outlined the importance of geomorphological studies in the decisive controls of bauxitization.

The outline of geological area under investigation is dealt in chapter-III. The major rock types,
the khondalite group of rocks and charnockites which have given rise to bauxite ore, are discussed in detail. The stages in bauxitization are also presented.

The mineralogy of the rocks under investigation proved to be highly interesting and showing different stages of bauxitization very clearly. It has found necessary to use petrological study to identify the parent rocks which are now in highly weathered condition. The petrology, mineralogy and chemical analysis of bauxite deposit of Kollimalai Hills are presented in chapter-IV. The author has used the available literature on Electron microscopic investigation, Scanning electron microprobe analysis, Differential thermal analysis, Infrared radiation analysis, Neutron activation analysis, Heavy mineral analysis and Rapid method of chemical analysis for interpreting the petrology, mineralogy and chemistry of lateritic bauxite of the Kollimalai Hills.

Using the above data, an attempt on the genesis of lateritic bauxite of the Kollimalai Hills is made in chapter-V. In addition, the geomorphic significance on the genesis of lateritic bauxite deposit of the area is presented in detail.
It is concluded that the formation of lateritic bauxite deposit of the area is by and large governed by cumulative effect of several controls. Out of them, the author is of the view that the geomorphic expression with favourable slope, which facilitates free drainage, has played an important role in the formation of lateritic bauxite deposit on the Kollimalai Hills.