THE MICRO-STRUCTURE OF COALS FROM THE JANGALGALI AND KALAKOT AREAS IN THE JAMMU PROVINCE

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INTRODUCTION

The economic importance of the Jammu coalfields first attracted attention about the year 1900. The nature and occurrence of these coals which are regarded as Lower Eocene in age has been studied from time to time by the officers of Mining Department of the Jammu and Kashmir State and also by other geologists. These coals have been generally described as semi-anthracitic with a low volatile content but a high percentage of ash, and some coals are known to exhibit coking properties. The coals generally appear to contain a high percentage of sulphur. Most of the coals are friable and show a foliated structure. The total output of coal recorded from Kashmir between 1940 and 1950 was 35,487 tons.

It is important that a systematic survey of the coal-bearing formations is made with a view to ascertain the economic value of these coals and their possible utilization.
The present work includes a description of the nature of the microscopic constituents observed in coals of the widely separated areas of Jangalgali and Kalakot. A representative set of specimens from these localities was made available through the help of Mr. T. R. Bhatia, Lecturer in Geology, G. M. College, Jammu, who has visited these areas for geological fieldwork. I am thankful to Mr. Bhatia for sending me his collection for study.

Geology of the Area

The geological account of the area including the Sangarmarg and Mehowgala coalfields was given by T. D. La Touche in 1888. Simpson (1904) published an account of the Jammu coalfields in the Memoirs of the Geological Survey of India. Middlemiss (1929) studied some of the coalfields in detail and his account of the Kalakot, Metka, Mahogala and other coalfields is published in the Mineral Survey Reports of Jammu and Kashmir Government.

The geological account which follows is based mainly on the works of Simpson and Middlemiss.

The coal measures of Jammu Province do not appear to have been formed in the same way as the Lower Gondwana coals, in gently inclined basins or troughs thrown down by faulting. These coals, like some other Tertiary coal deposits in the Salt Range, Baluchistan, Sind, etc., are closely associated with foraminifera-bearing shales and limestones suggesting that the coals were in many cases deposited very close to the seacoast probably in estuaries and marshes.

These coal measures occur on the north-east and south-west flanks of elongated domes or arches and are usually inclined at moderate to steep angles outwards from the dome areas. On the flanks of the domes the coal-bearing strata of Eocene age are overlain by the Murree series, while in the inner parts the underlying Great limestones crop out.

The upper Coal Measures which are about 120 feet thick are overlain by about 400 feet thick Nummulitic series of Eocene age and the Murree series of upper Tertiary age. They are underlain by the Bauxite series, 4 to over 24 feet thick, below which is first the Breccia 20 to 30 feet thick and then the Great limestone of unknown thickness. The Breccia has probably been formed by disintegration of the Great limestone. Its age is not definitely known. There is no definite evidence of age of the Great limestone, and it is probably older than Trias. The limestone over 1,500 feet thick was doubtfully referred to the Kioto limestone of Spiti. Sometimes the Great limestone is identified with the Sirban limestone of Kaghan valley and also