

## BOOK REVIEWS

### GLACIAL AND FLUVIAL GEOMORPHOLOGY OF WESTERN HIMALAYA.

By Manmohan Nath Kaul (1990), Concept Publishing Company, New Delhi 110059, 322 Pages, 113 Figs. 27 Tables. Rs. 300.

The book under review is an outgrowth of the author's doctoral thesis on the detailed study of glacial geomorphology of the Liddar Valley in Kashmir. The subject has not attracted much attention though glaciers as such have been studied in considerable detail in the higher reaches of the Himalaya. The book by Manmohan Nath Kaul, therefore, fills a gap. It has been well organised with an introduction followed by geological setting before dilating on glacial and related geomorphological aspects.

Kaul has adopted a modern approach to the study of glacial geomorphology and the chapter on the dynamics of the Liddar glaciers combines all the natural determinants of glaciers, their distribution, mass balance and fluctuation.

In glacial geomorphology, glacial erosion has a wide ranging effect. Kaul has systematically analysed these factors and has brought out many interesting geomorphological features directly related to glacial erosion in both east and west Liddar valleys. In this he has not overlooked the control exercised by geological features.

He has documented the various types of glacial deposits from source area to the snout. Even glacial deposits have distinct geomorphological features of their own as observed in the Liddar Valley and their study has helped in reconstructing the history of Pleistocene glaciers.

There is no glacial regime without the imprint of fluvial influence. Within the glacial stage the ice-melt water brings about great changes in landform as well as deposits. Kaul has brought these aspects in his study in Liddar Valley. According to him the huge Kame deltas near Shishnag Lake could have been formed by thick glacial ice and by large quantity of glacial meltwater.

It is well known that where glacier ends river starts. The Liddar Valley forms the source for the East and West Liddar down to their confluence at Nunwan. The junction of Liddar with Jhelum is typically a fluvial landscape with gorges and terraces.

Kaul has also attempted a palaeogeographic reconstruction of the Liddar Valley glacial landscape. The glaciers of the Liddar Valley, and for that matter in the rest of the Himalaya, are the vestiges of Pleistocene glaciation.

Based on fossil flora, pollen analysis, lichenometric analysis and glacial geomorphology, Kaul concludes that the present landscape in the Liddar Valley has resulted from three glacial advances followed by retreats.

The book by Kaul is an excellent contribution on glacial geomorphology of the Liddar Valley of the Himalaya. The author has combined several parameters and presented a cogent picture of glacial and fluvial geomorphology of this beautiful valley in Kashmir Himalaya. I only wish the title of the book had emphasised more on the Liddar Valley than on western Himalaya. It would have been better if the photographs had been reproduced on art paper.

I have no hesitation in recommending this book for all libraries.