perception is bold though it could be further refined. His study amply shows how the living core of the Indian city is totally different from that of western city. With its neatly drawn maps, useful tables and clear expression, the book comes as a useful study for the advanced students, the town planners and the policy makers.

P. R. KARMARKAR

## GEOMORPHOLOGY OF THE RAVI RIVER

by

B. S. Marh

(1986)

Publisher : Inter-India Publications, New Delhi
Price Rs. 95/-; pp. 86, Maps, Tables, Sketches and Photographs

Himalayan geology is an old established branch of geology that the Indian geologists have been cultivating for well over a hundred years. In their research there are scattered discussions on some aspects of physiography which for want of a systematic discipline could not be considered by them as geomorphological findings. Yet they raised issues which are fundamentally geomorphological in nature and which could, legitimately, be considered as constituting the foundation of what later emerged as Himalayan geomorphology. Himalayan geomorphology is not merely regional geomorphology. The Himalayan geomorphic landscape is the creation of an extremely complex set of endogenous and exogenous processes operating on a vast range of lithological formations. Literally, all the known geomorphic agents and related geomorphic processes, structures, and tectonic movements have been involved in different times and places in the evolution of the Himalayan geomorphic landscape. The Himalayan context, however, has been so radically different from other settings that the Himalayan geomorphology cannot be interpreted simply as the modification of universal geomorphic evolution model by the Himalayan context. The Himalayan geomorphology is a member of the genre of mountain geomorphology but more significantly, these are some of the youngest folded mountains, not older than middle Miocene, they constitute the domain of sedimentaries, and they are subject to mid-latitude high mountain climates made more complex by the effects of monsoon airmasses. The Himalayan geomorphology is truly Himalayan in dimension.

Three agents, river, glacier, and wind, have produced the Himalayan geomorphic landscape. Its complexity arises from their conterminous (contemporaneous and coterminous) operation even though their spatial and temporal domains can be easily charted out and distinguished. Of the three the Himalayan rivers have no spatial or temporal specificities. There is no part of the entire Himalayan cordillera that does not bear the imprint of its rivers. The rivers have not been the mute witnesses of the colossal transformation experienced by the Himalayas. In their character can be discovered the essential lineaments of the evolution of the Himalayan geomorphic landscape. In every sense the rivers have been the participant witnesses responding in a dynamic pattern to the Himalayan convulsions. Terraces, waterfalls, rapids, gorges, knickpoints, and deeply entrenched valleys constitute the recurrent themes of geomorphological interest.

Dr. Bhupinder Singh Marh has concentrated his efforts on the terraces of Ravi which is truly a Himalayan river, rising between Dhaula Dhar and Pir Panjal's eastern continuation. It is clear that in origin it is a cis-Himalayan river so it reflects the cis-Himalayan tectonic, structural, lithological, and climatic conditions. Obviously, it is different from the antecedent Indus and Sutlej but one recurrent similarity with them is the series of terraces along various segments and at various elevations.

It is a short book, only 74 pages, 19 figures, 3 tables, and 14 photographs, these numbers indicate that a really scholarly scientific, doctoral thesis from an American university is generally short in volume but rich in content. There are many good reasons why Marh's book will attract the attention of serious students of Himalayan geomorphology. It is the geomorphology of a single river; to the best of my knowledge the only existing study of a Himalayan river. The geomorphology of Ravi is woven into many salient features of Himalayan geomorphology; the river responding to the many controlling factors which are integral to the latter complex and, in turn, undergoing impressive changes in terms of geomorphological processes, attributes, and features. Marh spares us of the frustrating experience of getting involved for the umpteenth time with the 'beaten to the hide' drainage basin morphometry of the Strahlerian or Hortonian type. Marh's analyses are based on solid, careful, intensive field observation, field measurements, and field photographs. Although 'American' in tenor Marh's text is not burdened by 'impressive' documentation (which quite often camouflages poor scholarship). He gives a succint review of literature which, as he rightly assesses, is very limited and poor in quality. Marh's review of Himalayan orogeny and syntaxial bends in terms of plate tectonics, evolution of Himalayan drainage, and glaciation of the Himalaya is highly selective, judicious and balanced. His hypothesis has been stated directly : the course of the Ravi river and its attendant terraces are the result of glaciation and regional uplift and several geomorphic uniquenesses are related to river capture, phases of uplift, and isostatic adjustments. His main conclusions are: tectonics was the main process during the pre-Pleistocene times while changes in climate became important in Pleistocene and post-Pleistocene times. Unpaired terraces are related to continuous uplift, deposition was characteristic during the Pleistocene glacial periods and Holocene marked the formation of terraces. Like a scholarly work Marh ends his book with as many as eight themes for future research. Questions relate to the absolute date of the deposits, Stratigraphic boundaries, modern soil properties, hydrological measurements on the rivers, and provenance of the deposits.

A good scientific text as Marh's book is, must arouse questions: what are the sedimentological attributes of the terrace deposits, how do these vary among the terrace levels, how do these four terraces differ from the meander terraces related to intrenched/incised/ingrown meanders, and how are the erosional terraces of Marh's identification different from erosional/rock-cut bench terraces? It is not a semantic problem. The Ravi terraces by Marh's own observations are fill-and-cut terraces and, hence, they clearly differ from rock-cut terraces which are not formed of deposition by the river itself. Two drawbacks of the maps must be annoying : some have been reduced so greatly that they are rendered illegible (Figure 3.1 and 3.2) and in the drainage maps there are no direction arrows (Figures 2.1, 5.3, 5.4 and 5.6).

Marh's book will stimulate thinking on the fluvial geomorphology of the Himalaya as much as it will inspire scholars to investigate other similar rivers and those which have experienced different life history. This effort is a small but sure step in the seemingly intractable, complex terra incognita that the Himalaya still is.

A. B. MUKERJI

TERRES DE BONNE ESPERANCE DE MONDE TROPICALE
(THE TROPICAL WORLD OF LANDS OF HOPE)

by

P. Gourou

(1982)

Price Rs. 100 f.; pp. 455, Figs. 24, Photographs 35

This important contribution by the doyen of French geographers must not escape notice of those working and working on the Tropical Lands of the world. Professor Gourou first major work on Tonkin Delta (Vietnam – which was then French Indo-China) earned for him an acclaim in the academic world. The second world war interrupted his academic career only to find him as a leader of the resistance movement "Macquis" against the Germans when they overran France. Presuming his academic activity after the war, Gouron taught at the Free University of Brussels, travelled widely in the tropical lands of South America, Africa and Asia. In 1947, in recognition of his scholarship, he was appointed as Professor in College de France; the highest honour in the French Scholarly World, which carries honorarium, with no strings attached by way of teaching or research, though many distinguished men of letters and science like Maurvois and J. Paul Sartre have made seminar contributions in their writings.

Professor Gourou's two important books 'Les Pays Tropicaux", (1947) and 'L Asic' (1953). The former was translated in English as "The Tropical World" made a deep impression on scholars working on different countries of the Tropical belt. His findings were, on the whole, pessimistic; he then saw little hope for countries like Brazil, Equatorial Africa, India and South East Asia.

In 1951, Gourou paid a visit to India and was with the present reviewer at Dharwad, for a few days. We did field trips in parts of North Karnatak and a memorable visit to Goa which was then under Portuguese rule. It was both interesting and instructive to travel with Gourou; his keen observations on landscapes and men, and his eminently practical suggestions for social and economic development. He, incidentally, paid a compliment to the reviewers recently published book "Western India" and agreed with the author that what India needed was application of small scale technology and training manpower, instead