

## Some Notes on Himalayan Mapping

The Himalaya, the southern frontier of Central Asia, has been for centuries a geographic enigma akin to the headwaters of the Nile and the wanderings of the Lop Nor. The earlier problems of location and elevation were solved, for the most part, by the pioneering efforts of the Surveyor General of India and the Survey of India, conducted since the mid-nineteenth century. Unfortunately, virtually all of the maps produced by the Surveyor General of India are officially restricted and thus normally not available. Far from satisfying our curiosity of the Himalaya, the Surveyor General and the Survey generated a host of questions regarding the population, cultures, and human ecology of that mountain system. These questions have attracted the full attention of numerous scholars representing many disciplines. Among geographers interested in the Himalaya, the cartographic work of Professor Pradyumna P. Karan is well known.

Since 1965, Karan has produced sheets of three Himalayan regions. Two of the maps are of entire national units; the third is of a single, but most important, urban concentration. The published maps are the product of many years of reconnaissance, data collection, data compilation, and archival work conducted in the Himalaya, India, Europe, and North America by Professor Karan—who also led the research and cartographic teams responsible for the drafting and printing of the maps. Research facilities were provided by the Himalayan Kingdoms involved and the University of Kentucky, which shared, together with the Kentucky Research Foundation, the National Geographic Society, the U. S. Army Natick Laboratories, and the Association of American Geographers, the production costs of the sheets.

The first of the Karan maps, "The Kingdom of Bhutan," was published in 1965 as Map Supplement Number 5, *Annals of the Association of American Geographers* (Vol. 55, December, 1965). Executed at the scale of 1:253,440, the map of Bhutan is based on Survey of India maps, field data collected by Karan during 1961 and 1964, and materials assembled in the British Museum, Commonwealth Relations Office, Royal Geographical Society, National Archives of India, and the Map Record and Issue Office of the Surveyor General of India.

At best, the visual representation of relief, by the use of shaded-relief technique in tan with triangulation and spot elevations, is adequate. The accuracy of the map, especially in the more remote areas, is open to question. Karan acknowledges this shortcoming by including an inset map which rates the reliability of sections of the Bhutan sheet as "good," "fair," or "poor." Roads, trails, settlements and other cultural features such as lamaseries and shrines are clearly shown, but the relative hierarchy of settlements is somewhat confusing. Useful in this respect is Karan's *Bhutan: A Physical and Cultural Geography* (Lexington: University Press of Kentucky, 1967). In short, "The Kingdom of Bhutan" is a useful aid for future research in this region though care must be taken in its use. An accurate and trustworthy map of Bhutan must await future, more detailed field studies.

The second Karan map is "The Kingdom of Sikkim," published as Map Supplement Number 10, *Annals of the Association of American Geographers* (Vol. 59,

March, 1969). Executed at 1:150,000 and based on Survey of India maps, maps and information supplied by the Royal Government of Sikkim, and on data Karan collected in the field during 1965 and 1968, the map of Sikkim represents a very considerable advance over the earlier map of Bhutan. A most useful glossary of Tibetan geographic terms that are found as place-names on the map appears, as does a detailed inset of the capital—Gangtok—showing major buildings, streets, and paths. The map key is more extensive and detailed than that of the Bhutan map, though it still suffers from the same awkward relative hierarchy of settlement size and type. An important addition to the settlement hierarchy, however, is the inclusion of a category of temporary grazing stations, which are occupied seasonally by pastoral folk of Sikkim. Perhaps the most improved aspect of the Sikkim sheet is the quality of shaded-relief that is employed. Done in a variety of shades to indicate elevation, the shaded-relief is crisp and pleasing, and much more sophisticated than the earlier map. Still, there is the problem of reliability. The northern, more remote regions, are, according to the reliability map Karan provides, based on data of “fair” reliability, while the more accessible southern regions are based on information regarded as “good.” In all ways, then, the Sikkim sheet is far superior to the map of Bhutan, probably reflecting the larger data and source base of the map.

Professor Karan's third map, “Kathmandu-Patan: The Twin Cities Urban System” is a welcome addition to the numerous maps of Nepal to be found in his book *Nepal: A Cultural and Physical Geography* (Lexington: University of Kentucky Press, 1960). Focusing on Kathmandu, the capital of the Himalayan Kingdom of Nepal, and its sister-city, Patan, the map was compiled under the auspices of the Nepal Geographical Society and accompanied Vol. 6 of *The Himalayan Review* (1973). Drawn at a large scale (1:13,300), one is immediately impressed with the clarity, orderly appearance, and careful color selection of this sheet. A variety of colors is used to distinguish among a number of land use patterns: residential, commercial, industrial, public and institutional, recreational, and agricultural. These categories are further refined on the basis of several criteria. Residential areas, for example, are coded according to population density. And some land uses—religious structures and certain commercial functions—carry separate identification (by symbol, but not necessarily by name). The land use data was collected in 1970 by Professor Karan, who used questionnaires and field observations in his work.

The Kathmandu-Patan sheet is not, perhaps, as detailed and exact as we would wish. Only main thoroughfares are shown, for example: secondary streets and the maze of alleys so typical of pre-industrial Asian cities are left to the imagination. And certain errors in street location have been made. An inset of the Kathmandu airport, located several miles from the center of the city, seems to be of limited usefulness. An orientation map of the entire Kathmandu Valley, which would relate the Kathmandu-Patan urban system to its surrounding physical and cultural environment, would have been of much greater utility. In this regard, careful attention should be given to *The Physical Development Plan for the Kathmandu Valley* (His Majesty's Government of Nepal, Department of Housing and Physical Planning; Ministry of Public Works, Transport, and Communications. Kathmandu: His Majesty's Government of Nepal, 1969).

Whatever the shortcoming of the three Karan maps, each has been received warmly in both the Himalaya and in the West. Each sheet represents a major contribution to our knowledge of land and life in the Himalaya and we look forward eagerly to future efforts of Professor Karan and others in this area.

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