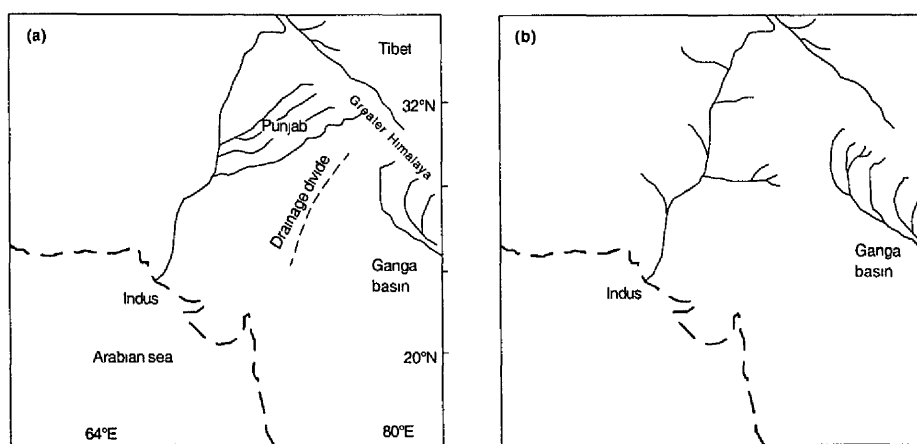


NOTES

EVOLUTION OF HIMALAYAN DRAINAGE

The evolution of drainage of Himalaya is an extremely interesting subject. But few geomorphologists have taken interest in tracing the history. It was in the early years of the Geological Survey of India that the conception of a major Indo-Brahm river was put forward by Pilgrim. Oldham speculated on the course of the lost river Saraswati.

A recent paper in *Nature* (v.438, 15 December 2005, pp 1001-1003) has drawn attention to the reorganisation of the western Himalayan river system. The authors have reconstructed the erosional discharge from the Indus river over the past 30 million years using seismic reflection data obtained from drill core samples from the Arabian sea and neodymium isotope data and have come to the interesting conclusion that the source of the Indus sediments was dominated by erosion, confined to the area lying to the north of Indus-Suture zone. The Himalayan source began only since the last 5 million years. The change in the erosional pattern is explained by re-routing the major rivers of the Punjab into the Indus. Earlier, the Punjab rivers had drained into the Ganga. The redrawn sketches illustrate this point.



Drainage pattern (a) as at present (b) before 5 million years

Our geomorphologists with an intimate knowledge of the drainage history of the Himalaya should take note of this new interpretation – requiring a change in our conception of the development of the Himalayan river system. The question of the course of the lost river Saraswati will gain new significance. A detailed study of the changing pattern of Himalayan drainage by geologists conversant with the topography of the region is warranted — BPR

URBAN CHAOS IN INDIA

The year 2005 has been particularly a bad year for some of our major cities in the south. Following the great tsunami, heavy rainfall affected cities like Mumbai, Bangalore and Chennai where streets turned into rivers which kept on flowing, not just for one or two hours, but for days, creating a great deal of misery. It was not the rainfall that was the cause but bad town planning. Kalpana Sharma writes in the *The Hindu*, 1st January 2006, analysing the cause for this chaos.

“Streets that turned into rivers, landscapes carved out of garbage, smog that you could cut with a knife, human habitations where humans should not live – these are the images of urban India in 2005.”

In no other year have we been reminded, so powerfully, of the absence of urban planning in a country where over a third of the population now lives in its cities and towns. Cities should not fall apart if there is too much rain. Yet, this is precisely what happened in both Mumbai and Chennai this year.

Admittedly, the deluge of 26 July, 2005 in Mumbai was unprecedented with over 900 mm of rain falling within 12 hours in suburban Mumbai. Some disruption was inevitable. But for over two days? As the days that followed that downpour clearly revealed, the devastation was compounded many times over by flagrant violations of building and planning norms by the very people who are supposed to implement them.

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The list of such transgressions is endless. The story in Chennai after the December deluge follows a similar path as also in other cities in Tamil Nadu and Karnataka.

The other image that illustrates the lawlessness that is the leitmotif of our cities is the bulldozer. At the end of the year, the bulldozers were pulling down buildings of brick and concrete in Ulhasnagar, a town outside Mumbai. Over 855 "illegal" constructions in Ulhasnagar could not have been built unnoticed if those in charge had not colluded in breaking the law. In New Delhi, shops could not have materialized in residential areas if someone in authority had not endorsed the violation of planning norms.

Can our cities survive if every law made to encourage orderly growth is defied with impunity?"

The challenge before urban planners is how to change this "rule of lawlessness" — BPR

SYMPOSIUM ON "SUPERCONTINENTS AND EVOLUTION OF EARTH" IN THE CONTEXT OF INDIAN SHIELD

The above symposium was held at Fremantle, Western Australia during 26-30 September, 2004. Sea floor spreading and plate tectonics have been on the central stage of earth sciences for over two decades. Work at Lamont-Doherty Geological Observatory in mid-1980s paved the way for the current thinking of pre-Pangea supercontinents. The seminal papers of SWEAT and the alternate hypotheses appeared in 1991 (*Geology*, v 19, pp 425-428, v 19, pp 598-601), and in (*Science*, v 252, pp 1409-1412). Since then vast amount of literature has appeared on Gondwana amalgamation and pre-Gondwana Rodinia configurations. In recent years Prof. Chris Powell seeing the potential of Australian geology in all reconstructions has established a Tectonic Special Research Centre (TSRC) with a mission to discover the supercontinents of which Australia has been part in the past three billion years, and to understand their amalgamation and dispersal history. Prof. Chris Powell unfortunately died in an air accident in 2001, but the TSRC has relentlessly pursued his mission with remarkable contributions to the understanding of supercontinents and earth evolution. TSRC recently organized a symposium to review the efforts at global level and synthesize the present knowledge. Indian shield shares with Australia the geology and therefore the proceedings of the conference are of great relevance in understanding and shaping new programs in the light of global efforts.

The symposium preceded with two full-day pre-conference workshops on (a) Palaeomagnetism and (b) Precambrian time scale on 25th September. Prof. McElhinny and Prof. Rob Vander Voo and researchers at University of Western Australia conducted the palaeomagnetism workshop and it was designed to cover fundamentals of palaeomagnetism and tectonic applications. The second workshop was designed by the subcommission on subdivisions and calibration of Precambrian time scale

spanning 88% of the earth's history. Pre- and post-symposium visits were organized to Capricorn, Albany-Fraser and Pinjarra orogenic belts. Participation in the workshops/fieldtrips was through prior (paid) registration.

Following the workshops, the symposium was formally launched on the same day with an icebreaker reception and registration. The technical sessions began with a formal welcome by Dr. Peter Cawood, the Director of TSRC. The symposium was meticulously designed with fourteen keynote presentations by leading scientists. The developments on various facets of supercontinents and earth's evolution research were reviewed. Over eighty other presentations were made covering various themes of the symposium. The keynote speakers included Drs. Dalziel (Rodinia 2005), David Scholl (subduction erosion and challenge to supercontinent reconstructions), David Yaen (superplumes and post perovskite transition), David Evans (Palaeoproterozoic Era-Global palaeogeography's final frontier), Rosell Korsch (assembling Australia), Paul Hoffmann (Neoproterozoic glacials), Michael Brown (metamorphic patterns in accretionary and collision zones—secular variation in metamorphic regimes and punctuated tectonic evolution of earth), David Groves (temporal distribution of mineral deposits in relation to tectonic and lithospheric evolution), Onno Oncken (controlling factors at convergent margins based on Andean case), Larry Brown (deep reflections, lithosphere structure and supercontinent evolution), Rob Vander Voo (palaeomagnetism and supercontinents with respect to Rodinia puzzle), Richard Hanson (Rodinia, the African perspective), Reinhardt Fuck (Rodinia descendants in south America), and Sergei Pisarevsky (Late Neoproterozoic palaeogeography alternative models and problems).

First day and the initial session of the second day of the symposium were devoted to general principles and mantle processes in relation to supercontinents and the early