history, and better ways adopted by the State and Central Governments in guiding investments and technological developments, there may yet be hope for better days in the 21st Century.

Visvanath quotes what a distinguished 19th Century French mineralogist has said about the "passion of a pioneer" – "the blend of optimism that cannot contemplate failure, of a perseverance that is fanatic in its intensity and a dedication amounting to obsessive concern" and concludes – "Digboi well No.1 was the culmination of such a passion a hundred years ago. Through the corridors of time and the forests of night, she is silently exhorting us to keep alive this pioneering spirit without which every other effort will be meaningless. It is important that we respond to this summons for, quite simply, it is a summons to greatness."

This is a book which every youngster should read to stimulate his dormant spirit.

B.P. RADHAKRISHNA

NEOTECTONIC MAP OF CHINA AND ADJACENT SEAS, 1:5,000,000. Compilers of the Map: Ye Dinghheng, Wang Xinzheng, Zao Xiaoqing. Geological Publishing House, Beijing, China, 1996.

The Neotectonic Map of China and adjacent seas has been compiled by 562 Comprehensive Geological Brigade of Chinese Academy of Geological Sciences.

The Neotectonic Map of this vast Asian land of China incorporates detailed topography, structure induced geological hazard features, Neogene-Quaternary sedimentary rocks, magmatic rocks and other aspects like thermal springs, heat flow values and stress movements.

There are five major features of the Neotectonic Movement in China. 1. The topography is higher in West China and lower in East China, 2. Active fault belts distribute regularly. 3. The geological hazard groups are controlled by active fault belts. 4. The distribution of geological bodies is controlled by structures. 5. Unitary global dynamic mechanism.

The map depicts three ladders of topography formed as a consequence of Neotectonic movement. The first ladder is Qinghai-Tibet plateau covering one fourth of land in China and rising over 4000 m above sea level forming the roof of the world. The Himalaya, Gangdise Range, Kunlun Mountains, Tanggula Range, Qilian Mountains, Hengduan Mountains, Bayan Har Mountains are some of the many high mountains in the plateau. The Himalaya is the highest among them rising above 6000 m. The second ladder is recongnised around Qinghai-Tibet including Inner Mongolia plateau, Loess plateau, Tienshan Mountains, Yunnan-Guizhou plateau and Qiling-Doba Mountains. It rises more than 1000 m above sea level and constitutes one third of land surface in China. The plains and hills in East China form the third topographic region, less than 1000 m high covering two fifth of land in China. These three regions were formed in Middle Pleistocene. The adjacent South China and East China Seas have wide shelf becoming narrow towards the Sea of Japan.

The extent of uplift in these different topographical domains is variable. In West China it is about 4000 m, in South West Tibet about 4500 m, Gangdise Range 4000 to 4500 m, in Kunlun Mts. 3000-4000 m decreasing progressively from south to north. Average uplift range is 2200 to 3000 m in Xinjiang area.

The thickness of piedmont facies is 5000 to 13000 m in South West Tarim Basin. The biggest differential range between uplift and subsidence is more than 10,000 m.

44 active fault belts and 70 active faults, formed during Neotectonic movement, are depicted on the map. Most of these are strike-slip faults. West China has faults whose displacements are 10 mm per year and on the northside of China-India boundary the displacement is 38 mm per year.

The ratio of horizontal and vertical displacements of active faults is 1.0 in South China, 6.0 in West China, and 2.0 in North China. Most of the active faults were formed before the Neotectonic Movements. Three levels of active faults, compressive, compresso-shear, tensional, tenso-shear, shear and Holocene active faults are shown on the map. Besides, horizontal/vertical displacements and their rates by various methods are also depicted. Other structural features plotted on the map include Quaternary folds, Neotectonic basins, rotational shear active structural zone, latitudinal active Tectonic Zones, meridional active Tectonic Zones, NE-NNE active tectonic zones, NW-NNW active Tectonic Zones and other active tectonic zones.

Earthquakes, volcanoes, avalanches, landslides, debris flows, surface cracks and subsidence are shown on the map under induced geological hazards. Most of the earthquakes have occurred in NE-NNE active tectonic belts in East China, in active vortex shear system and NW-NNW active tectonic belts in West China, in active meridional tectonic belts in Middle China, concentrating mainly in West China and Taiwan area. Volcanic activity pertaining to Neotectonic movement is mainly experienced in Northeast China, North China, Inner Mongolia, Taiwan, Hainan, Yunnan and Tibet. Recent Period accounts for 11 volcanic centres, Quaternary period for 105 and Neogene for 69. 30 geological hazard groups are drawn on the map with symbols.

Neogene and Quaternary systems are shown on the map with symbols superimposed on topography with various chronostratigraphic units. Various types of intrusions and eruptions and volcanic craters belonging to Neogene and Quaternary are depicted on the map.

The map displays such details as temperature of thermal springs and heat flow values (HFV).

There are two tectonic phases and five tectonic periods of Neotectonic Movement in China. The second phase, which is the major phase of Neotectonic Movement, is from the end of Pliocene to Holocene which has caused the present geomorphological architecture of China. The map contains 59 testing points of principal stress directions and 33 inferred directions.

The Neotectonic Map of China and Adjacent Seas is an excellent attempt and contains a wealth of information. The map presented in English language is bound to have large number of readers and certainly deserves to be studied to gain global understanding of Neotectonic Movements. It is a commendable effort on the part of the Chinese Academy of Geological Sciences in bringing out this Neotectonic Map.

Bangalore S.V. Srikantia

THE LOMA PRIETA, CALIFORNIA EARTHQUAKE OF OCTOBER 17, 1989 – Main Shock Characteristics, US Geological Survey, Professional Paper, 1550-A, 297p. Edited by Paul Spudich.

The Loma Prieta Earthquake occurred on November 17, 1989. A number of studies have been carried out on this very important earthquake. The total damage was estimated to cost more than 7 billion dollars in 1989 and it was said to be the most expensive earthquake ever to hit the North American Continent. Of course, in recent years we had the Northridge earthquake on January 17, 1994 near Los Angeles which, with an estimated loss of US $ 30 billion, surpassed the Loma Prieta earthquake. Then we had the Kobe earthquake on January 17, 1995 surpassing all the previous estimates of damage by an earthquake. The Kobe earthquake, as of today, is the most expensive earthquake having killed an estimated 6000 people and having caused damage in excess of US $ 100 billion. The volume under review is a very detailed documentation of the main shock characteristics of the Loma Prieta earthquake. It includes a synopsis by Paul Spudich and 17 contributed papers addressing different aspects of the Loma Prieta main shock characteristics.