

the partition of India and its ill effects on the industry, the earthquake of 15th August, 1950, the deep exploration of the Nahorkatiya structure, the success story of this field, the incorporation of a new company 'Oil India Ltd' in February, 1959—are all told in an easy conversational style, making the history of events all absorbing. The success story of Nahorkatiya ultimately ushered in the Oil and Natural Gas Commission in 1959. Other events in the neighbouring States are narrated giving only the highlights and the events in the period 1959-1989 are appropriately dealt in a separate chapter styled 'Breaking of a New Dawn'. We wish some one takes on hand the recounting of the history of oil exploration and the important role played by K. D. Malaviya and the team of geologists and geophysicists with vision, who working with rare team spirit and devotion, ushered in the Nationalised Oil Industry of India.

The important lesson to be drawn from this eminently readable book under review is that success in any endeavour can come only after a series of failures and no one need, therefore, get discouraged at initial failures. The book 'A Hundred Years of Oil' is delightful to read. Whether in oil, or in gold or other mineral exploration, the pioneering spirit that animated the first discovery is important: 'the blend of an optimism that cannot contemplate failures, of a perseverance that is fanatic in its intensity and of a dedication amounting to obsessive concern'. The book makes a clarion call to keep alive this pioneering spirit. It is this spirit which is badly needed at present and should, therefore, deserves to be read by all those young men seeking a new and adventurous career.

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PROCEEDINGS OF THE NATIONAL SEMINAR OF TERTIARY OROGENY IN INDIAN SUBCONTINENT, 1987. By V. K. Gairola, Department of Geology, Banaras Hindu University, Varanasi, 221 005, pp. 377, Price Rs. 400.

The Tertiary orogeny is a well documented event in the Himalaya, Indo-Burman ranges, Andaman-Nicobar islands and the mountain chain of Baluchistan and NWF Province of Pakistan forming an outer frame of the Indian subcontinent. There are other, however, non-orogenic events like the Deccan trap activity and coastal marine transgressions which occurred during the period when orogeny affected the northern part of the subcontinent. The selection of this theme for a National Seminar by the Department of Geology, Banaras Hindu University, Varanasi is, therefore, commendable.

The proceedings contain 22 papers of which 14 relate to the Himalaya, 2 to Deccan activity, 2 to Nagaland and one each to Meghalaya, Tripura, Eastern Ghat and South India. The volume is broadly divided into structure and tectonics, magmatism and metamorphism, metallogeny and mineral resources and, sedimentology and biostratigraphy.

The structural study in the Almora crystalline zone of Kumaun suggests that the low values of viscosity contrast could be a factor for development of lesser number of folds within South Almora Thrust zone (Agarwal and Bhattacharya). The reinterpretation of the stratigraphy and structure of rocks of the Rampur window of H.P. explains remobilisation of the basement Bandel Granite after the

deposition of Rampur cover sediments (Bhargava and Ameta). In the Joshimath area of the Central Crystalline Zone, the D_1 deformation is responsible for first phase of prograde metamorphism and the early D_2 for second phase and late D_2 for retrogressive metamorphism (Gairola and Srivastava). The pelitic schists of Kistwar area of Jammu seem to have suffered a wide-ranging temperature condition of 460°C to 670°C under 6 kb pressure (Das). Amphibolite of Doda area in Jammu sector seems to have been formed from tholeiitic magma of normal and Mg-basaltic-composition (Guha and Gupta). The paper on Mandi-Pandoh area of H.P. (Gupta) could have been more purposeful. A view has been put forth that deep-seated faults of great antiquity have played a major role in tectonic zonation of the Himalaya (Pande). The Main Boundary Fault is conceived as a shear fault between highly folded Himalaya and the frontal depression in which Siwaliks were deposited (Tripathi and Sexena). The identifications of several paleo soil horizons in the Lower Siwaliks of Jammu indicate a relatively arid climate with low seasonal rainfall (Ranga Rao and Kunte). The Siwalik sediments appear to form a new source of gold placers (Lal *et al.*). Baryte mineralization in Nagthat Quartzite of Song Valley of U.P. seems to have new potential (Nagar and Rawat). The polymetallic sulphide mineralization in Hafla-Pokhri area appears to be structurally controlled (Pande *et al.*). Correlation between Ypresian-Early Lutetian biostratigraphy and the tectonic history of Lesser Himalaya has been suggested (Batra).

Outside Himalaya, the Northeastern India has received considerable coverage. The ophiolite belt of Nagaland is interpreted as a product of spreading ridge and tectonic exhumation in subduction zone environment (Ghose). The rich planktonic and benthic foraminifera from the Disang-Barail belt of Nagaland have been utilised for biostratigraphic correlation (Baruah *et al.*) The foraminiferal assemblage from Surma Group of Tripura is biostratigraphically classified into four zones and subzones (Bhatia). Four distinct blocks having tectonic and depositional history have been identified in Meghalaya Plateau (Narasimha).

The Deccan volcanism which remarkably coincides with the onset of Himalayan orogeny has within-plate tectonic setting and related to Reunion hot-spot activity (Powar *et al.*). There is also significant crustal contribution to the genesis of alkaline potassic rocks of the rift zone during volcanic activity in the Deccan Trap Province (Karakare).

The alkali-carbonatite complexes associated with fault systems seem to suggest reactivation of the Eastern Ghats paleo-rift system during Tertiary and other periods (Ramaswamy). The evolution of landforms on the continental crust and the formation of tectonic basins along the coastal edges of South India seem to be related to plate tectonic movement of India (Subramanian and Dharmaraj). Based on unusual intraplate seismicity, high heat flow and intensive deformation along E-W trending zone south of Indian plate, it is suggested to be a nascent subduction zone (Drobia and Subramanyam).

The proceedings contain a few good papers. 'Tertiary events' would have been a more appropriate title. The volume is well brought out with clear and bold print. The book is a good reference work on Tertiary events in the Indian subcontinent.