

BOOK REVIEW

GEOLOGY OF PETROLIFEROUS BASINS OF INDIA by P.L. Zutshi and M.S. Panwar, KDMIPE-ONGC, Dehra Dun, First Edition, 1997)

As a part of its sustained drive across four decades to find more oil for the nation, ONGC's Keshav Dev Malaviya Institute of Petroleum Exploration (KDMIPE), recognized and classified 26 sedimentary basins as well as hydrocarbon presence ranging from commercial to insignificant in 1996. This prospectivity classification was naturally a process and not a status, since the basins could be upgraded or downgraded on the basis of oilfield data obtained by drilling and production. Nevertheless, it was a useful starting point for oil exploration in the country.

In a later classification (1979), the emphasis was placed on tectonic style. India's sedimentary basins occur in a widespread of geological settings ranging from foreland fold and thrust belts (e.g. Tripura-Cachar, Assam-Arakan), to interior rifts (e.g. Cambay, Gondwana) to passive margins (east and west coasts). Their evolutionary history would undoubtedly have played a significant role in hydrocarbon genesis and entrapment.

The next obvious step was to synthesise the two classifications so as to arrive at a better road map for exploration. This was done in the classifications carried out in 1982, 1983, 1995 with each refinement bringing in new insights into an overall understanding of the prevalent petroleum systems. For the sake of completeness, mention may be made of a classification suggested in 1997 (i.e. the year of publication of the present book) by two distinguished

ex-geoscientists of ONGC, V.V. Sastri and D.N. Avasthi in the Proceedings of Petrotech-97. They defined 8 basin categories with 10 parameters as a quantitative measure of 'the combined effect of hydrocarbon potential and the exploratory effort required in them due to the complexity of other factors'. The importance of all such work in rapidly deciding upon block selection in licence rounds under the Government of India's liberalized New Exploration Licence Policy (NELP), needs hardly be emphasised.

Against this background, the publication under review describes the basinal geology and hydrocarbon potential of 12 fairly well explored basins. It is a clear, cogent and comprehensive compilation of stratigraphic, structural and oilfield data for ready reference by the oil explorer. It is also of educative value in respect of the subsurface geology of vast tracts of India. The fact that this review is being undertaken four years after the publication of the report, should not detract from its value, except that some of the statistics are out-of-date and that new tools of measurements and interpretation that have since emerged may modify some of the conclusions drawn.

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MICROTECTONICS (CD-ROM) by C.W. Passchier and R.A.J. Trouw, 2000. Springer-Verlag.

This book on a CD comes as a boon for every teacher who conducts a course in Structural Geology. Rocks preserve within them, in the form of microstructures, very important information about deformation mechanisms and processes, sense of shear, flow types, stress and strain. "Microtectonics", as rightly stated by the authors in their introduction, "is a state-of-the-art description of microstructures and their interpretation".

The book contains 11 chapters. In the initial chapters

(1 and 2), the fundamental principles that are useful in understanding microstructures are discussed. These include description of concepts such as flow, deformation, strain, use of reference frames, vorticity and spin, fabric attractor and rheology. Chapter 3 is devoted exclusively to deformation mechanisms wherein details of mechanisms such as cataclastic flow, pressure solution, intracrystalline deformation, twinning, recovery, recrystallization, creep, superplasticity, grain boundary area reduction and static