BOOK REVIEWS

PROCEEDINGS: SECOND SEMINAR ON PETROLIFEROUS BASINS OF INDIA: -18-20, December 1991 : KDMIPE, ONGC, Dehra Dun, Vol.1, Published By Indian Petroleum Publishers, Dehra Dun, 738p.

The Proceedings of the Second seminar on Petroliferous Basins of India which was held at Dehra dun on 18-20 December 1991 are presently under publication in three volumes. If Volume I, which is reviewed here, is any index, we can expect the entire set to be a repository of invaluable information on the petroleum geology of India.

The first Seminar was held in 1983. It was a pioneering and successful venture in assembling data from various sedimentary basins and analyzing them in terms of petroleum prospectivity. In the years that have since elapsed, new exploration technologies have come to the fore. Interpretative skills have, correspondingly, sharpened. Today, it is difficult to speak on any aspect of pertoleum geology without using one or more of the power tools of simulations, basin modelling, seismic stratigraphy, geochemical characterization etc. In the volume under review, these tools have been efficiently wielded in most of the 41 papers presented.

The volume starts off appropriately with a new and convincing "Classification of Indian Sedimentary Basins in the Framework of Plate tectonics." In an ealier classification, which was formulated in the mid-seventies and which was based on hydrocarbon prospectivity and intensity of exploration, 26 sedimentary basins were recognized. For nearly two decades they influenced the priorities of the national exploration effort.

The new classification reorganizes 38 sedimentary basins, based on their present emplacement in the overall tectonic framework of the Indian plate. These 38 basins are grouped under three main heads: intracratonic, rifted and orogenic. From the point of view of petroleum habitat, the rifted category (Cambay Basin, West Coast and East Coast Basins , Pranhita-Godavari Basin etc.) is the most rewarding as at present. It contributes about 90% of the national oil produciton. In second place is the orogenic type (Upper and Lower Assam Basins, Tripura-Mizoram Basin, Andaman Basin, Rajasthan Basin etc.), resulting from the collisions/subduction of the Indian plate with other plates to the north and east in Oligocene - Eocene times. It contributes the remaining 10% of oil production, almost all from the Upper Assam Basin.

Despite its inherent generalization and compromises, basin classification in the framework of plate tectonics has proved to be an important decision-making tool in exploration priorities world-wide. There is, however, one disturbing thought:: with plate tectonics itself being increasingly questioned (See, for instance, the Note on "Problems with Plate Tectonics" published in Jour. Geol.Soc.Ind. vol.42, No.5, November 1993 issue) we will have to look around for some other criteria, or modify the existing ones, to understand and utilize the basin emplacement - oil habitat relationship .

The reviewer has dwelt at some length on basin categorization (which, incidentally is a process and not an externally-fixed status) because its understanding will alone permit a geological appreciation of the papers that follow.

The areas covered in this volume are the Upper Assam - Arakan Belt (which was the birth place of the Indian petroleum industry 104 years ago), the East Coast Basin and the Andaman Islands. Nearly half the number of papers deal with the Assam-Arakan area. Obviously, all of them cannot be dealt with here but mention must be made of the two or three papers on one

of the excisting frontier areas of oil exploration : The Belt of Schuppern, a wide NE-SW trending zone of multiple overthrusts where many oil and gas seepages have been observed and some oil fields, notably Digboi and Kharsang, established. The pioneering work of the Assam Oil Company Limited (AOC) in this zone is east of the longitude of Kohima. Apart from following up this work, more needs to be done westwards. The Belt is replete with hydrocarbon entrapment conditions in both its subthrust and upthrust areas. The problem is to recognise these conditions through seismic in this forest-clad mountain country of complex geology. From the papers presented, much progress seems to have been made in this direction. It is a pity that none of the papers make even a passing reference to the immense shale oil possibilities of the Belt (vide M.N. Prasad *et al.* "Oil generating shales and associated coals in northeast India, an alternate source of energy", *Urja*, August 1990, pp.39-45).

Both the papers on the Andaman Basin summarize our knowledge of its difficult geology. Radar data interpretation refines existing data and suggests inland structures all along the Jarwa Thrust which could be hydrocarbon prospective. The second paper updates earlier reports (1983, 1987) on the geology and hydrocarbon potential of the Basin. The results from the 12 wells drilled so far (actually this should read 15 taking into account the three wells of Oil India Limited) have been discouraging. Principal homes are pinned on the wrench-faulted Neogene sediments of the fore-arc rather than on the underlying paleogenes which are so highly disturbed and contorted as to confuse, if not defy, seismic resolution. Fore-arcs as is well- known are an important habitat of oil.

Of the papers on East Coast and Eastern Offshore Basins, those dealing with West Bengal, Mahanadi and Palar are essentially status reports and academic studies with pointers to future drilling. Significant contributions to sedimentological processes, volcanic episodes and the overall petroleum systems are cogently presented in the four papers dealing with the Krishna-Godavari Basin. Of even greater interest are the eight papers of the Cauvery Basin. Between them they combine all the elements of the modern integrated approach : seismic stratigraphy, maturity studies, basin modelling etc. It is tempting to attribute to this integration the fact that oil production in the basin has increased from 20 tonnes per day (20tpd) in early 1986 to 800 tpd in late 1993.

We eagerly await the publication of vol.II on the Western Margin Basins.

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TRAINING AND EDUCATION IN REMOTE SENSING FOR RESOURCE MANAGEMENT: (1993), N.D. Sharma and others (Eds.) Proceedings of the Silver Jubilee Seminar, Indian Institute of of Remotesensing (IIRS), 4, Kalidas Road, Dehra Dun-248 001,(1992) , 270p.

This well got up volume contains the proceedings of the Silver Jubilee Celebrations and Seminar conducted at the Indian Institute of Remote Sensing (IIRS), Dehra Dun on completion of 25 years of its useful existence.