

BOOK REVIEW

PROCEEDINGS OF THE NATIONAL SYMPOSIUM ON RECENT RESEARCHES IN SEDIMENTARY BASINS: IMPLICATIONS IN THE EXPLORATION OF NATURAL RESOURCES. Edited by R.N. Tiwari, Indian Petroleum Publishers, Dehra Dun, 1998, 328p.

The XIII Annual Convention of the Indian Association of Sedimentologists was held from October 28 to 30, 1996, at the Banaras Hindu University. It was organised by the Department of Geology in its Platinum Jubilee year, in which the highlights were the National Symposium on the focal theme "Recent Researches in Sedimentary Basins: Implications in the Exploration of Natural Resources." Several papers were presented in the technical sessions by different geoscientists from various organisations. The present volume is a direct outcome of these deliberations and incorporates 29 selected papers, that are adequately illustrated.

The excellently printed publication with an impressive get up has a coloured cover photo that matches with the background colour, and depicts Vindhyan outcrop in M.P. (James Peters). The text of the volume is preceded and succeeded by life sketch of M.N. Mehrotra, in whose honour it is published, and of R.N. Tiwari, Editor, and main organiser of the symposium. The papers are grouped under Hydrocarbons, Atomic Minerals, Metallic and Non-Metallic Minerals, Groundwater, and Basin Analysis.

"Hydrocarbons" have contributions from ONGC, in the main. The first paper is an overview of 38 sedimentary basins and their hydrocarbon resources potential (S.K. Biswas), summarising data earlier presented (S.K. Biswas, A.L. Bhasin and Jokhan Ram, 1993). Another paper on sedimentary basins and their hydrocarbon potential (Awadhesh Rai and others) brings out category-wise total inventory of 26 basins up to 200 m isobath. The western off-shore petroliferous province extending from Kutch to Cape Comorin (Jokhan Ram and others), encompassing three sedimentary basins divided into seven sub provinces, has the regional tectonic and evolutionary features, as also the petroleum systems analysed. The succeeding paper is on the Gandhar field of southwestern part of Cambay basin (A.N. Pandey and others) presenting sedimentological data on the cored section; the characteristic feature of the sedimentary facies is leading to inference of marine processes dominating in the southwestern part.

The paper on Thiruvavur field of the Cauvery basin (R.P. Singh and others) narrates systematically the petrological, SEM, sedimentological, palaeontological and electrical logging data, and concludes on the formation of secondary porosity and on deposition in deep marine conditions. The succeeding paper on sedimentary sequences of the Krishna-Godavari basin (S.K. Gupta and others) summarises tectonics and sedimentation, and identifies four petroleum systems. In another paper on this basin, Eocene sedimentation and hydrocarbon prospects, south of Matsyapuri-Palakollu Fault (A. Sanyal and others), are brought out with the geological account. The major discoveries of hydrocarbon are located within the Pasarlapudi Formation. The other papers deal with numerical seismic modelling (J.P. Narayan and others), and petrography of Tipam reservoir sands of Jorajan oil field, Assam (Minati Das and others).

"Atomic Minerals" section has five papers, all from the Atomic Minerals Division. They deal, in main, with uranium from sedimentary sources (Rajendra Singh), uranium mineralisation in Abujhmar basin (S.N. Chaturvedi and others), in Singhora Group in Chattisgarh basin (D.K. Sinha and others), Vempalle Formation of Cuddapah basin (A.V. Jayagopal and others), and on radioactive fanglomerate from Bastar district (Yamuna Singh).

"Metallic and Non-Metallic Minerals" section includes five papers. The paper on lead-zinc mineralisation in Damoh district, M.P., (S.N. Bhagat and others) records mineralisation along the

high density girdles of lineaments. An exhaustive paper on the Tal phosphorites of Nigalidhar and Korgai synclines of Himachal Himalaya (R.N. Tiwari and R.N.S. Yadav) presents systematic results of detailed field and laboratory studies with interesting data of industrial significance. It is supplemented by meaningful photo and microphotographs, sections, X-ray diffractograms, infrared spectra, chemical compositions, organic carbons, SEM, and petrography, converging on the aspect of the genesis of the phosphorites. Himachal phosphorites remain unapproachable due to rough Himalayan terrain, inaccessibility due to lack of roads, and transportation route very much away from the deposits. This paper serves to remind that fertiliser sources of H.P. await industrial utilisation, upon beneficiation technology implementation. The remaining papers deal with silica sand pockets in Dhandraul Quartzite of the Mirzapur district, U.P. (D.P. Singh and others), clay from Tripura (S.P. Nim and others), and unusual aids in mineral exploration (M.N. Mehrotra and others).

"Groundwater" has six papers. Based on Bouguer gravity anomalies of NGRI, gravity contours in eastern U.P. Ganga basin are drawn (M. Banerjee and others) to interpret by inversion scheme the bed rock configuration and maximum depth of bed rocks. The hard rock terrain in between Narnaul and Nangal Chowdhry, Haryana, is studied for hydrological data from shallow wells and deep drilling (D.S. Pandey and others), and it is deciphered that optimum cost-effective drilling depth is at 37 m, below ground level. Artificial recharge mechanism is the subject of study in another paper and is implemented by water spreading technique and through deep wells in the vicinity of Krishnavati river bed, to attend to the water supply problem of Narnaul town, thus improving the groundwater quality of the area (R.N. Tiwari and others). The hydrogeochemistry of the groundwaters of three major coastal aquifers in the Pondicherry region has been evaluated (A.L. Ramanathan and others). Impact of open cast mining of coal in the northeastern part of the Singrauli coal field, M.P., has been brought out (Arvind Kumar and others). Water samples from the study area Doohi in Jaunpur district, U.P., were studied for nitrate and its concentration ascribed to anthropogenic causes (Raman Chaturvedi and others).

"Basin Analysis" has three papers. Based on the data from 11 bore holes in the Indo-Gangetic Foredeep, energy sequence classification and heavy mineral clock were utilised for stratigraphic correlation and a number of unconformities located in the Cenozoic strata; repetitive oscillatory movements are inferred; the paper presents considerable data in excellent detail (V. Raiverman and others). The "hardground" and "reworked concretions" recorded from Dhosa oolite (Jurassic) in Kachchh are considered of significance in basin analysis (Anand K. Jaitly). Palynological data has been effectively utilised to resolve the Permian stratigraphic delimitations in the Godavari graben (Suresh C. Srivastava and others).

This symposium volume thus covers wide ranging aspects within the focal theme and brings forth the work and the results from different Universities, Institutes, Government of India departments and undertakings and the ONGC, besides others. It also highlights the work of geoscientists, who are of different age groups and are actively pursuing disciplines of their interests in earth science subjects. The work reported covers different parts of the country and on strata of different ages, relating to problems concerning the pertinent areas. Each of the papers is extensively illustrated and converges on meaningful conclusions. The volume will definitely be a purposeful addition to any library.

Prof. R.N. Tiwari has done an arduous and painstaking job very creditably. He was responsible for organising the symposium, and for scrutiny of the papers presented in the technical sessions for publication. His achievement of bringing out this volume in record time, single-handed, speaks of his abilities. Apart from that, he is also co-author in many papers on diverse subjects, indicative of the trends of research in which he is engaged currently. The papers included in the volume would not have seen the light of the day, thereby encouraging the work of geoscientists in different fields of research, without the personal interest of the Editor R.N. Tiwari.