

Book Reviews

'WATER WELL TECHNOLOGY'. By O. P. Handa, I.B.H. Publishing Co., 1988, 311 pp. Price Rs. 125/-

This is a useful book for people engaged in water well drilling in alluvial and other sedimentary formations. The problems encountered in drilling through hard rocks, however, has received scant attention.

The following criticisms pointing to certain shortcomings are offered with a view to improving the presentation in a subsequent edition :

(1) A few illustrations of drills and their components are necessary. (2) On p.7 Down the Hole Hammer Rig (DTH) is not just suited for basalts only. It can be used to drill through harder rocks like granites and gneiss. (3) Although on p. 8 the sub-title given is 'Airline Lubricator', the description given has no relation to the title. (4) On p. 35, para 2, expansion for the abbreviation 'DCDMA' is needed. (5) In chapter 4, p. 55, following additional information is required : (a) The expected life of all types of casings, and not merely fabricated casings. (b) Equivalent Indian standards in addition to A.P.I. standards as pipes are now made to I.S. specifications. (c) A discussion on the use of HDPE (High Density Polyethelene) pipe, which lasts for over fifty years, is resistant to heat, acids and corrosive substances, is necessary. (6) In chapter 5, from page 101 onwards and up to 111, the sub-title 'Well Lifting Devices' is incorrect. It should have been 'Water Lifting Devices'. (7) While discussing the airlift method of pumping, the relative size of pipes for the airline and eductor pipe in relation to size of the well being tested, the volume of air, the pressure required etc., should be given. It is better to state that in the airlift method, no moving parts are involved, excepting two dissimilar pipes. The term 'diffusion' should be explained properly and defined. (8) On p. 98, description of a compressor of one particular capacity is given, which gives the impression to the reader that all compressors are of only one type and size. Compressors of various types and capacities are available. It is desirable to give a general description. (9) While discussing the use of compressors, it is better to state that the compressed air is also used for back-washing and development of wells. (10) p. 125, instead of limiting the scope to the pump and generator of a particular capacity, a general description is to be preferred. (11) On p. 126, the performance of a few ranges of submersible pumps conforming to I.S. specification is given. There are a wide variety of pumps available right from 100 mm diameter having varying head and discharge capacities. (12) On p. 147, while discussing the use of sprinklers, mention is made regarding the use of aluminium pipes. Now HDPE and LDPE pipes are also being used very widely in preference to aluminium pipes which gets bent and damaged in transit and reacts if the water quality is bad. (13) On p. 153, at para 1, the cost of drip irrigation installation is given as \$ 700 per hectare. This is a variable item and depends entirely on the nature of crop. It actually ranges (as per the present costs) from about Rs. 10,000 per hectare for cocoanut crop, to Rs. 35,000 per hectare for rose gardens. It should be specified that this is not suited for field crops. (14) On p. 167 (chapter 8) while listing the causes for well failure, failure due to improper/inadequate casings should also be included. (15) While discussing the problems

faced in basaltic formations at p. 248, a note on inter-trappean and red bole bed and on problems encountered in developing wells in basaltic formation should be given.

A note on revitalisation of dug-wells, extension drilling methods to augment water supply in wells will add to the usefulness of the book. Most of the discussion on development relates to unconsolidated formation and there is very little discussion on the problems and difficulties encountered in hard rock formations. This is a deficiency which has to be made good if the book is intended to cover all aspects of water well drilling.

The book is a welcome contribution and is sure to benefit all those engaged in drilling for water.

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BASEMENT CORRELATION ACROSS THE NORTH ATLANTIC. J.-P. Lefort,
Springer-Verlag. 1989, 148 p., 77 figs. Price : DM88.

The geology of concealed continental basement in passive margins like the Atlantic has so far received little specific attention. With the advent of plate tectonics and offshore oil exploration, the Atlantic ocean margin has become the new focus of integrated geoscientific studies. The main thrust of these efforts is to reconstruct the pre-drift configuration of Pangaea. The main data sources are drill samples and dredge hauls which, through classical studies like petrology, geochemistry, stratigraphy and palaeontology along with geophysical data, throw light on the nature of concealed basement. The reconstruction of links between drifted continents has been made using palaeomagnetic criteria, bathymetric data, magnetic anomalies and geometry of transform fault zones. A synthesis of such data has resulted in the recognition of Grenvillean, Caledonian-Appalachian, Ligerian-Acadian and Hercynian-Alleghanian fold belts as well as identification of ancient plate sutures.

The book is divided into eight chapters each well-illustrated with large single-fold maps. The first chapter deals with study methodology and the next six chapters with individual fold belts. The last chapter discusses the tectonic mechanisms with emphasis on the type of sutures, subduction and obduction features, transcurrent shearing, transform faults as well as buckling, rotation and impingement of plates.

The author has painstakingly assembled a vast mass of information from multilingual sources and interpreted it cogently. The felicitous rendering of the text into English by M. S. N. Carpenter makes the book highly readable. The studies summarised in this volume have great relevance to the reconstruction of Gondwanaland through unmasking of concealed geology of the margins of its constituent continents. As a starter, the agencies concerned should synthesize the data on the continental margins of India.

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