

Geological Prospecting of Petroleum

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Geological Prospecting of Petroleum

By Heinz Beckmann
A Halsted Press Book,
John Wiley & Sons,
Toronto and New York, 183 p., 1976.
 \$6.95.

Reviewed by Peter Sonnenfeld
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In a concise paperback, originally published by Ferdinand Enke Verlag of Stuttgart, West Germany, the ins and outs of the exploration business are covered very expertly for both novice and stranger to the trade. The booklet addresses itself, however, mainly to the budding wellsite geologist and his team partners, the geophysicists, drillers and production engineers. After an introductory note on historical, energy, war, pollution, medical and religious aspects of petroleum, the book covers in one chapter the origin, migration and accumulation of hydrocarbons, types of reservoirs, chemistry and technical properties of crude oil. A brief discussion of the structure of an average oil producing company is followed by six chapters on surface exploration methods, drilling procedures, mud gas logging, the use of cutting, cores, mechanical logs and drillstem tests, as well as on well completions. An extensive, but not exhaustive literature completes the account.

This pocket book is written from a practical point of view and is illustrated in a most instructive manner. Some topics, such as measuring driller's depth by adding up the lengths of pipe stands, collecting lost circulation samples on a waffle board, Pitot tube or pressure gauge measurements of gas blowing through the pipe organ of a drillstem test or geological aspects of whipstocking, directional drilling surveys and fishing jobs appear to have been left out intentionally. Even so the book offers a very comprehensive coverage of wellsite geology.

Although extremely lucidly written, European nomenclature crops up on frequent occasions with some significant detriment, such as ape board for monkey board in North American usage, self-erecting for jack-knife or cantilever derrick, drillometer for penetration rate recorder, rolling for drilling ahead, balcony for anticlinal nose, elliptical anticline for doubly plunging anticline, ramifying for branching faults, primer and causal reservoirs for those with structural-stratigraphic traps or those related to diapirs, reefs and buried mounds. What could have been an excellent classroom text, has lost much in translation.

Most North American texts dealing on this level with petroleum exploration practices are now dated and this little volume fills a much needed gap in the literature available to those interested in a bird's eye view on hydrocarbon exploration methods. Its readability more than makes up for the author's reluctance to cover within this volume also theoretical aspects of petroleum geology. The volume can be useful to all those needing a quick introduction into the workings of oil and gas exploration. It is unfortunate that it was not proofread by an oil company geologist operating in the North Sea Theatre, to catch typographical errors, omitted spacing between words and slips in translation of oilfield parlance.

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Petroleum Engineering

By Alfred Mayer-Gurr
A Halsted Press Book,
John Wiley & Sons,
Toronto and New York, 298 p., 1976.
 \$6.95

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This booklet appears as Volume 3 in a series on the Geology of Petroleum edited by Heinz Beckmann and continues the practical guides to phases of hydrocarbon exploration and production started by the Ferdinand Enke Verlag of Stuttgart, West Germany. The volume deals first with hydrocarbon reservoir properties and their determination, such as porosity, pore compressibility, permeability, saturation, pressure, temperature and volume, and the driving forces in a reservoir. Another chapter deals with fluid flow, the material balance and reservoir modelling. A further chapter is devoted to well testing and monitoring methods and a final chapter covers reserve estimation, recovery factors, well spacing and field development. Some comprehensive texts on petroleum engineering are listed at the end and additional literature references follow each chapter. Fifteen appendices provide formulae and practical hints for various common oil-field calculations.

The book is limited in its coverage to reservoir engineering and treats this field essentially in a non-mathematical way, as it is mainly directed to the non-specialist. Secondary and tertiary recovery methods are omitted as well as the effects on rates of production of development well completion techniques, such as acidizing and fracturing or the rationale of various modes of spacing injection wells. For reservoir pressure readings, a Hugel bomb is not very common outside Germany, the more widely used Amerada bomb and its successor models could have been mentioned.