S E A P E X

# PETROLEUM MICROBIOLOGY*

By

G.H. Evans

BP Petroleum Development Ltd.
Singapore

## ABSTRACT

The basic nature and properties of micro-organisms are described in terms of their requirements for energy, nutrients, and a carbon source for respiration and for growth. The assimilation of hydrocarbons is related to both the chemical reactions within the cells and to the predominant selectivity for normal paraffins within the range of hydrocarbon types present in petroleum oil and gases.

Although it had been known since the end of last century that micro-organisms would assimilate hydrocarbons (the initial documentation being related to oil exploration), it had been considered an unusual property until extensive and sustained investigation, just before and subsequent to World War II, showed that it was a widespread property among many different micro-organisms.

Hydrocarbons are produced in very limited quantities by probably all micro-organisms, and in significant quantities by some. All living tissues contain significant quantities of material which, with small chemical modifications (many of which occur for other purposes in the cells themselves), can be converted to hydrocarbons. These considerations lead to interesting speculation on the origins of petroleum from this source.

Micro-organisms and petroleum are sometimes associated in a negative aspect; such as, corrosion of aircraft tanks and deposits at the interface between hydrocarbons and water bottoms in storage tanks. A better understanding of the biological/biochemical behaviour of micro-organisms has given rise to beneficial applications such as micro-biological treatment of oily effluent, and the real probability that in a matter of few years only, animal feedstuff, and subsequently human food will be produced commercially from hydrocarbons by the agency of micro-organisms.

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