SIGNIFICANT EXPLORATORY DEVELOPMENTS OF 1953

by

PHILLIP C. INGALLS[1]

Abstract

The results of wildcatting in the United States' active oil frontiers of 1953 demonstrated that the current optimistic predictions for those big, sparsely tested areas are not just wishful thinking.

During 1953, exploratory thinking was further broadened and brightened by the completion of oil or gas-producing wildcats across the country. Some of these discoveries were in the wide-open spaces, others hugged or were within areas of big production; some were completed as significant producers, others made only small wells but afforded concrete evidence of the potentialities of a hitherto unproductive area or formation.

None of these wildcat discoveries opened what can yet be recognized as an exceptionally large reserve. It will take development drilling during the next few years to determine how much oil and gas was found. But, regardless of the final tally, the discoveries resulting from last year's unprecedented reaching out and down into the unknown have stimulated further exploratory efforts that will lead to more major oil and gas fields.

COMPOSITION OF CRUDE OIL AND ITS RELATION TO STRATIGRAPHY IN WYOMING[2]

by

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Abstract

Although the crude oils of Wyoming vary widely in their composition, nearly all of them can be classified into two major groups on the basis of the average composition of oils from each formation. These two groups of oils are found in rocks representing different environments of deposition. The high-sulphur, low-gasoline, aromatic-naphthene base crudes are associated with thick limestone, dolomite, and shale sequences which were deposited in broad shallow seas under conditions of prolonged crustal stability. The low-sulphur, high-gasoline, paraffin-naphthene base crudes are associated with sand-shale sequences deposited in areas of moderate tectonic activity with high rates of subsidence and deposition. Differences in oils within a formation are correlative with differences in environment of deposition and with depth of burial. In the Pennsylvanian-Permian formations of Wyoming the oils associated with the dolomite-evaporite facies at the east are more aromatic and naphthenic than the oils associated with the dolomite-shale facies at the west. Within the Frontier formation the oils from areas of low

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[2] Abstract of paper printed in Bull. Amer. Assoc. Petr. Geol., Vol. 37, No. 8, August, 1953.
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sand-shale ratios contain more paraffins and less sulphur than oils from areas of high sand-shale ratios. Oils from depths greater than 8,000 feet in the Tensleep sandstone of Wyoming generally contain more than 50 percent gasoline, whereas oils from depths less than 3,000 feet in the sand generally contain less than 25 percent gasoline. However, there is no change in the paraffin content of the heavier fractions of the Tensleep oils with depth. Also, there is no correlation between oil composition and depth for oils from all the Wyoming formations. No correlation was found between the composition of the Wyoming oils and their age, or the possible catalytic activity of their reservoir rocks.

STRATEGIC WEAPONS BRING THE NEXT WAR TO YOUR FRONT DOOR

by

ROBERT E. FEARON[1]

Abstract

Strategic weapons are those instruments of war which are applied to transportation, sources of industrial strength, communications, or centers of government, to affect indirectly the outcome of a conflict. As such they are distinguished from weapons which are intended for use on the fighting armies directly.

Of all strategic targets, the industrial cities of the homeland of a combatant country are among the most conspicuous. These can expect attack, deadly, certain, and effective, with modern strategic weapons.

Very great "improvements" in weapons have occurred and more are in progress. The effectiveness of killing by atomic bombs is reasonably well known. The sinister nature of chemical developments is much less realized. Some nerve gases, such as the nitrogen mustards, and others disable the human body in a very ingenious way, and over longer intervals than other poisons, and need much less material to do so. They truly fall in the class of long range strategic weapons.

Bacterial toxins are another facet of the chemical warfare scheme. Such poisons are in some cases about as efficiently toxic on a weight basis, as is radium, a substance too precious to use. Also, some bacterial toxins have the qualification of a delayed action of five or more hours.

Enzymes and hormones may be used, and probably will be, in the next war. Chemical modifications of these can be employed to produce abnormal effects, possibly disturbing mental functions, and affecting the judgement of persons in authority. This would be a very subtle but quite effective form of war. In this way it is possible that there could be a serious form of war going on without the nation which is the subject of the aggression even knowing it.

Perhaps the ultimate refinement in ingenious military inventions is the combining of radioactivity in hormone, enzyme, or toxin materials, thus using atomic energy in the manner of efficient and selective destruction of vital parts of target organisms.

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