

Distinguished Lecture Tour
American Association of Petroleum Geologists
EXPLORATION, GEOLOGY, AND POTENTIAL OF THE NORTH SEA
ABSTRACT - Colin D. Wilkinson

North Sea exploration was triggered by the discovery of the giant Slochteren gas field in northeastern Holland in 1959. Once the international boundary lines on the continental shelf were ratified according to the premises of the Geneva Convention, the stage was set for intense exploration. Initially, exploration activities were concentrated in the southern United Kingdom basin where gas discoveries were made in the Permian Rotliegendes sandstone, underlying the Zechstein evaporites. It was the presence of these evaporites which had a great effect on the course of exploration. They formed an efficient caprock for Permian dolomites and sandstones, but also created seismic velocity problems which confused structural interpretations. Additionally, salt acted as the medium for structural deformation of the younger sediments, a factor which was to prove to be very important in the Northern Tertiary basin, particularly in the Ekofisk area.

After the discovery of the Permian Rotliegendes and Triassic Bunter gas reservoirs in the United Kingdom sector of the North Sea, there followed a series of dry holes which led to a period of discouragement. However, discovery of the Cod gas-condensate field in the Paleocene sands and the Ekofisk oil field in Danian carbonate rock, both in the Northern Tertiary basin, revitalized the exploration drive and opened the possibilities of new reservoirs and an oil province on the North. The Ekofisk discovery was followed by additional discoveries in adjacent blocks, outlining the first giant oil field in northwestern Europe. A development program is now under way with the ultimate aim of producing 1 million bbl of oil and more than 1 Bcf of gas per day.

A third exploration phase is now developing, following recent discoveries in the far north of the United Kingdom off the coast of Scotland. Oil potential is in Jurassic and perhaps older sandstones. In this area, water depths are approaching 500 ft. and production demands the development of new techniques.

Located in an area of increasing energy demand, North Sea oil production nevertheless is not expected to make a great impression on European energy supply problems. Although the North Sea may produce 3-5 million bbl of oil per day by 1980, by that date Western European oil consumption will have increased between 14 and 10 million bbl per day.

Colin D. Wilkinson

Biographical Review



Colin D. Wilkinson was born July 24, 1936 at Newcastle-Upon-Tyne, England. He attended the University of Sheffield, Yorkshire, England, where he was awarded the B.A. degree in Geology in 1960.

Upon graduation in 1960, he became a member of the Geological Survey of Ghana, West Africa, where his work consisted of field mapping and ore and water prospecting projects until 1962.

Mr. Wilkinson spent the years 1963-65 with Ray Geophysical Company, Hayes, Middlesex, United Kingdom as a seismic computer, surveyor and interpreter.

Beginning in 1965, his career has been with the Phillips Petroleum Company. Until 1968, he was primarily in London but periodically in Oslo and The Hague. His duties were concerned with North Sea exploration where he was wellsite and senior geologist.

In 1969, Mr. Wilkinson was in Alexandria, Egypt, where he was supervising geologist in the Western Desert and Nile Delta.

Currently, he is located in Bartlesville, Oklahoma, where he is regional geologist for Europe-Africa. He is a member of AAPG and the Geological Society of England.