NEW CONCEPTS IN OCEANIC SEDIMENTATION

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The deep sea drilling project, deep submersibles, and new techniques in studying deep ocean sedimentation are changing our ideas of deep ocean sediments. The mechanics of sediment transport are becoming controversial as serious objections are raised as to the importance of turbidity current and new contour currents and turbid water layers are being discovered. Continental Drift and Sea Floor Spreading have also strongly influenced the ocean sediments. These concepts of deep ocean sedimentation are now important with the increasing probability that oil and oil traps can be found in this environment.

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NORWAY'S EKOFISK FIELD— A LANDMARK IN NORTH SEA BASIN EXPLORATION

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In seven years, the North Sea has passed from a little-known basin to an established major gas and oil province. Ekofisk Field, the first significant oil discovery, occurs on an elongated dome formed by diapiric movement of the deeper Permian salt. The Danian (basal Tertiary) limestone reservoir has been penetrated by four wells on the structure. Early studies show the limestone is a typical biomicrite consisting of coccoliths and foraminifera, probably deposited in a deep quiet-water environment. Formation tests in all wells indicate reservoir continuity and high production rates of low-sulfur 35° API oil. Commercial production will begin early next year by unusual use of conventional facilities.

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MINERAL RESOURCES OF OKLAHOMA

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The mineral industry provides a principal economic base for the State of Oklahoma, as well as an important source of tax revenue. For the past three years the gross income from mineral resources has exceeded $1 billion annually. This amount ranks the state as fourth in the nation in gross mineral production. However, 95% of the total mineral production is derived from oil and gas. With the declining petroleum reserve picture for our state, the prospects for further expansion and development of the mineral industry will have to rely upon alternative resources. The further development of coal and industrial minerals provides an opportunity to offset the declining petroleum production. Owing to the diversified geology of Oklahoma, a broad spectrum of industrial minerals is available for development. With the advent of the Arkansas River Navigation Program the opportunity for expansion for industrial mineral activities in eastern Oklahoma offers promise for future growth of the minerals industry.

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ROLE OF SEDIMENTOLOGY IN THE DISCOVERY AND DEVELOPMENT OF CARDIUM OIL FIELDS, WESTERN CANADA

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Two billion barrels of oil are contained in a series of isolated linear sand bodies which form the Cardium Sand. This formation is traceable throughout 10,000 square miles of the Alberta Basin of Western Canada. Traps are purely statigraphic. From the beginning, exploration was aided by synthesis of sedimentologic and stratigraphic data. The talk will trace the history of exploration and development of these giant oil reserves and illustrate the utility of conceptual models in exploration. A variety of models representing regressive deltaic, transgressive shelf and deep sea, turbidite deposition will be discussed. The best model for the Cardium Sand can be