tures because of flexibility and concessions on the part of management. Companies with stereotyped exploration policies regarding fixed ROI formulas, minimum size of land holdings, exploration procedures, and partnership arrangements, find it difficult to compete.

Examples of exploration geologists' influence on corporate decisions show how the merits of a prospect can change. They illustrate the disadvantages of restricting the geologist prematurely with economic limitations and suggest that the premonitions and innermost thoughts of the explorer should be included in geologic reports. There seems to be no substitute for exploration experience in dealing with important but intangible parameters.

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REEF FACIES AND STRATIFIED MINERALIZATION

The rhythmic reef-type sedimentation of the Givetian synclinorium of Dianant (Belgium) has been the subject of a detailed facies study including faunal and physical chemical characteristics.

The more recent reefal phenomena dating from the upper Aptian in the vicinity of Reocin (west of Santander, Spain) have been compared lithologically and paleontologically.

The stratified mineralization is related closely to the Reocin reef facies. This is not an isolated case; other examples throughout the world illustrate such associations.

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RECENT INTERTIDAL CEMENTS—THEIR MINERALOGY, TEXTURE, AND SIGNIFICANCE, GRAND CAYMAN, BRITISH WEST INDIES

Recent intertidal rocks of Grand Cayman are cemented by metastable carbonates. Both aragonite and high magnesium calcite are present in various morphologic forms, as shown by X-ray, stains, and chemical analysis. Aragonite is present either as clear acicular crusts or as a fine-grained ($<5\mu$) "micrite" crust. These 2 modes of aragonite are present in the same specimen and within the same pore as alternating layers. High magnesium calcite cement is present only as a fine-grained ($<5\mu$) "micrite" crust. Both the acicular and "micrite" aragonite cements appear to be a chemical precipitate from normal-marine water. Chemical analysis of a sample of the "micrite" aragonite cement shows a high sodium content (4,580 ppm) which would support the hypothesis of marine origin of this cement. The magnesium calcite cement data are incomplete and its origin is more uncertain. Both the aragonite and magnesium calcite "micrite" cements contain trapped detritus such as tiny foraminifers and silt-size shell debris and many areas appear to be distinctly pelleted. Once the pore is completely filled, the "micrite" cement mimics the fine-grained carbonate-mud matrix characteristic of quiet water conditions. The presence of significant amounts of fine-grained metastable cements as described from Holocene high-energy environments raises the question of whether these cements can survive in ancient rock sequences, and be confused with carbonate-mud matrix material characteristic of much lower energy situations. The presence of high magnesium "micrite" cement in this situation and its known propensity for stabilization without significant change in form leads me to believe that such cements can be preserved and incorporated into the rock record, and could be confused with true micrite matrix.

[1] Paper will be presented by G. P. BROGNON, Canadian Fina Oil Ltd., Calgary, Alta.

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CONSOLIDATION OF MARINE CARBONATE MUD

Although there has been considerable interest in the consolidation of marine carbonate sediments, there has been little actual testing of carbonates. For our study, 34 sediment samples from the Gulf of Mexico, Florida Bay, and the Bahama Banks were tested in an Anteus back-pressure consolidometer to determine their consolidation characteristics. Eleven of the sediment samples were less than 50% calcium carbonate. Of the samples containing more than 70% carbonate, 12 samples were of Holocene age, deposited since Wisconsin glaciation, and 11 samples from the continental slope west of Florida were of Pleistocene-Pliocene age.

The samples were overconsolidated; that is, there was more structural strength than would be expected from the effect of the present overburden. There was a definite relation between the percentage of fine material present and the resulting consolidation.

In general, the results of consolidation tests were similar to those found by testing noncarbonate silty clay. The main differences observed were between the older carbonate sediments and the noncarbonate or partly carbonate sediments. Under a similar final load, the carbonate sediments did not compact to as low a porosity as the noncarbonates. This could be caused by differences in particle shape and strength of the individual particles. Age and incipient cementation must play a part because the Holocene carbonate sediments did not show this characteristic. This conclusion is supported by the results reported by several other workers —that the strength of carbonate sediments increases with age.

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ARCHITECTURE OF WESTERN PART OF ALBERTA BASIN AND UPPER DEVONIAN REEF TRENDS

A paleogeology map with datum below the Devonian unconformity based on data from previous investigations, a revised Devonian palinspastic map, and maps of Devonian units in the Main Ranges west of the Banff-Jasper highway between 51°30′ and 52°00′, provide new data for assessing structural control of reef-bank margins and the western edge of the Fairholme carbonate shelf.

Although recent erosion has removed most of the Devonian strata of the Main Ranges, sufficient outcrops are preserved to indicate definite trends. Two distinct NW-SE trends are evident in the underlying Ordovician and Cambrian strata: (1) a prominent broad positive ridge paralleling the eastern Front Ranges and adjoining Foothills (Alberta ridge), and (2) a prominent negative trough or depression (North Saskatchewan trough) paralleling the eastern Main Ranges and marked by the thickest and youngest Ordovician sediments preserved.

The margins of the Southesk complex and the north margin of the Fairholme complex trend NNE or NE