Also, a very meaningful part of this particular time record is the set of layers of evaporite material (in this case anhydrite, as mentioned above). They are found interspersed in between the layers of shale, silt, and dolomite at various points in the local stratigraphic column. These evaporite layers are of much the same types as those which are presently being deposited in the shallow, brinish waters in some parts of the Persian Gulf, Caspian Sea, and on the coast of Baja, California, south of San Diego. Therefore, we can only conclude that they were formed in relatively shallow, evaporative basins of the ancient inland sea. Each recurring evaporite layer of anhydrite which appears in the well cores, as one progresses up the stratigraphic column in that geographic area, undoubtedly represents a period of time when the amount of water flowing into this inland sea was restricted (as is also true in modern evaporite-forming seas). This reduction of supply of water occurs as a result of islands or other barriers along the coasts, a lowering of the ocean level, the sinking or rising of the land, or merely because of the tidal cycles. With one or more of these factors restricting the supply of water, the sun and wind concentrate the brine until the remaining water is unable to keep all the salts in solution. The surplus salts then precipitate, sinking to the bottom as sediment. This is of course a slow process, and many years are required for building up an appreciable thickness of deposit.

The recent observation of such processes as the evaporative formation of anhydrite, and of the production of various types of limestone and dolomite, has done wonders in helping us to understand the ancient strata found in oil fields and elsewhere. In fact, the value of comparing modern marine environments with these ancient environments has become so obvious that the large oil companies now send their best geologists to various coastal areas to study modern sedimentary processes. This has resulted in a much better understanding of the marine strata found deep in the oil fields, and thus enables the petroleum geologist to estimate the position of other oil reservoirs which lie at various distances from the test wells. An example of such close correlation between the ancient and the modern is that of the similarity between the large area of carbonate, oil-producing strata in Alberta and the modern carbonate "Florida-Bahama Platform." This is discussed by several recent authors.[11]

Composition of the Rainbow Area Reefs

The reefs of the Rainbow oil fields, to which we referred above, grew in rather shallow water in Middle Devonian times. Growth conditions were apparently favorable, as numerous of the reefs grew in the familiar forms (shapes) seen in the thriving Great Barrier Reef area of Australia.[12] The organisms which produced these Canadian reefs were typical marine animals and calcareous algae. The fossils of these are abundant in the bodies of the reefs, and numerous places in the reefs have the fossils still in undisturbed position. J. R. Langton and his associates made a detailed study of drilling cores from forty-five wells which had been drilled into these reefs in the