focused their attention particularly on the lower layers of the covering series. This study provides a very reliable and meaningful insight into the history of the large, relatively shallow marine basin of Alberta, during the period of time which immediately followed the growth of the reefs.

One incontrovertible part of this history, recognized not only by Davies and Ludlam but also by all geologists who have studied the area, is that evaporative conditions dominated this period of time. It is also widely agreed that a part of the influence which brought on evaporative conditions was the growth of the barrier reef which extends for more than 150 miles in a SW-NE direction across the northwest end of the large basin in which the pinnacle and atoll reefs lay (as shown in Figure 12). The gradual upward growth of this linear, barrier reef not only slowed the flow of water over it from the main ocean which lay to the north and west, but undoubtedly helped to further cut off the flow of fresh sea water in times when uplifts of the land occurred, or when the sea level dropped.

The first evaporite layers (no. 1 in Figure 14) which began to cover the reefs show very thin, alternating layers in the drilling cores. These laminations (microlayers) are composed mainly of anhydrite, but some of the thinner ones are of relatively pure calcium carbonate (called "calcite" in the geologic literature); and some are of dolomite (similar to calcium carbonate but including magnesium). The anhydrite laminations range from less than one millimeter to a few millimeters in thickness. They closely resemble the thin layers of the "banded anhydrite" from the Delaware basin of West Texas, shown in Figure 19. There is regularly a very thin, dark layer of organic material between each anhydrite layer. This is taken to be the remains of the microscopic organisms which were living in the water before it reached such a high salt concentration that they died.

We must here pause to reflect on the meaning of these laminations. What can thin layers of anhydrite, calcium carbonate, and organic matter tell us about the lengths of time which elapsed? As stated earlier, each of the laminations must represent at least a seasonal change in the environment. This is evident from the fact that it takes time for a body of water to develop a new population of organisms for formation of the organic layer. It is also evident from the known length of time required for evaporating enough water to form calcite and anhydrite layers of this thickness.

The anhydrite (and probably also the calcium carbonate) for producing the evaporative layers usually comes out of the mineral-laden water by precipitation, the minute particles of precipitant settling to the bottom.[22] In order to bring about the precipitation of the calcium carbonate ($CaCO_3$), normal sea water has to be evaporated to a concentration of about one-half of its original volume. Then, if evaporation continues until the volume is only about one-fifth of the original, this forms a sufficiently strong brine to begin the precipitation of anhydrite ($CaSO_4$). When a volume of about