time the calcite, anhydrite, and organic material were deposited. This ease of correlation of layers also shows that the amounts of material settling out of the water in any one season (or period of time between changes of environment) were very uniform throughout the evaporative basin. In fact, from cores brought up from a depth of 4,475 feet, a short distance to the east of the Rainbow oil fields, Davies and his associates were able to correlate laminations from two wells which are spaced at 25 kilometers (15.5 miles) apart.[25]

Another time-indicating feature of these covering layers which we have been considering is that there is such a large number of dolomite microlayers. There is no possible way for large amounts of either dolomite or of calcium carbonate to rapidly precipitate from sea water, because the magnesium and calcium content of the water is very small (much less than the sodium chloride content). However, since it is obvious that the microlayers of these had to come from the dissolved calcium and magnesium in the sea water, the only conclusion which can be reached is that each thin layer of the calcite or dolomite mineral represents at least a few months of precipitation time. Most geologists and oceanographers believe that each dolomite layer was first a layer of calcite, which then was gradually changed to dolomite, as magnesium ions were supplied from the water circulating around the calcite crystals. Whether the dolomite layers were formed in this manner or precipitated directly is of no great importance for our purposes here, as the process could not have been rapid in either case, due to the low amount of magnesium ions in the water.

Thus we are again reminded that the earth has had a long history, with many kinds of slow processes going on to form the intricately organized series of deposits in the thick sedimentary blanket which covers most of the earth. Truly our God has not been miserly in his establishing of a sufficient number of physical and biological processes upon the earth!

Periods of Water Turbulence

Now, after emphasizing the long, non-turbulent periods during which the precipitating minerals were able to settle to the bottom of the marine basin in Alberta, we must take a moment to pursue a very different line. Davies reports that the laminated sedimentary deposits which were studied (no. 1 in Figure 14) contain a number of levels at which there were interruptions because of water turbulence. In each such case the turbulence left a layer of moderately fine-grained, sandy sediments, before allowing another series of anhydrite and organic laminations to be added. The layers of sediments left during these periods of water turbulence vary in thickness from only about one-fourth of an inch, to over one foot. Two exciting features about these "graded beds," as they are called, are (a) the fossils they contain, and (b) the fact that they also contain a record of what happened at the beginning of each period of turbulence. At intervals there is a slightly, but definitely, eroded upper surface of the anhydrite series of microlayers. The erosion