growth and accumulation rate of the shell-producing organisms which are found in the oozes--just as we did in the case of Pacific Ocean sediments. The minimum time is the number of years required for deposition, when we assume that the highest growth and accumulation rate of the ooze-producing organisms was maintained continuously for the entire 250 feet, with no interruptions due to unfavorable climatic conditions. (Actually, it is extremely unlikely that such favorable environmental conditions were maintained continuously.) The highest accumulation rate for pelagic oozes of this type in the Mediterranean Sea has been found to be 3.5 centimeters (35 millimeters) per 1,000 years.[47] When we divide the 250 feet (76 meters) of Pleistocene and Pliocene oozes of Site 125 by this amount, we arrive at 2,170 as the number of thousands of years minimum time required for the accumulation of this deposit. We accept this as an accurate minimum time because there is no way by which fine particles such as make up these sediments could be deposited rapidly by turbulent waters. As we pointed out in discussing the sediments of the Pacific, long settling times and quiet water are absolutely necessary for particles of such small size to be able to sink down to the ocean floor.

The Evaporite Beds

A record of additional periods of time is provided by the layers of evaporite minerals (salts) which lie beneath the oozes we have just considered. In the Mediterranean, these minerals consist of layers of anhydrite, gypsum, and halite (common salt), with frequent layers of dolomitic marl between them. (Marls are unlithified sediments which contain a considerable proportion of calcium carbonate or dolomite mixed with fine clay particles.) As stated above, these minerals are a testimony to long periods of evaporation which concentrated the sea water sufficiently for the salts to begin to precipitate out of the water.

The existence of these periods of evaporation is not difficult to understand when we consider the fact that the entire supply of sea water to the Mediterranean has to flow through the narrow Strait of Gibraltar. The several tectonic changes which are known to have occurred in this area in the past brought about restrictions in the flow of water through this strait, during certain periods. It is easy to see that any cutting off of the supply of water from the Atlantic Ocean would soon result in an evaporative concentration of the water in the Mediterranean Sea. At present this sea is dependent upon the Atlantic for nine-tenths of its water supply. (Rainfall and the inflow of water from rivers supply only one-tenth of the water which is lost by evaporation each year.)[48]

The sediment cores from the Mediterranean drillings show us the great contrast between the relatively pure oceanic carbonate oozes above the evaporite layers, and the evaporite deposits themselves. The abundance of open-ocean type microfossils in the oozes which overlie the evaporites shows that there has been a normal, well-oxygenated, marine environment during most of the time since the laying down of the evaporite beds.[49] But no such environment