which is exposed to the wind and sun.

These two sets of cyclic, evaporite layers which have been described should be related in one's mind to our description of the evaporitic coverings given earlier in this chapter. They are actually in the upper part of the 650 foot series of evaporitic strata which we previously described as sealing over the Rainbow reefs. All of these evaporitic strata are combined together in the bottom section of Table 2, to which we have already made reference.

Some Time Calculations

If one asks how much time is represented by the sabkha series of cycles in the upper part of the evaporite coverings (Figure 14), a meaningful response can be made. First, we must recognize, as we did when considering the lower, laminated parts of this 650 foot deposit, that the deposition of gypsum, anhydrite, and dolomite are necessarily slow. (See the earlier parts of this chapter for the factors which limit the rate of deposition of these minerals.) Second, we must take into account the rate at which a salt flat with the sabkha-cycle organization is formed. It may be that the rate of formation was somewhat faster or slower in ancient times than now--or probably faster at some times and slower at others. Nevertheless, the very nature of the sedimentary components of the cycle demands a period of at least a few thousand years for forming such a salt flat, of even six miles width. According to the studies made by D. J. Kinsman on the Trucial Coast of Arabia, to which we referred earlier, the present rate of shoreline regression (increase of land) would broaden the sabkhas approximately one mile each 1,000 years. He estimates that the flats which are six miles wide have required about 5,000 years for their formation. These six-mile expanses of organized salt flat are only one or two sabkha cycles thick.[35]

So when we think of the 20 cycles which lie above the reefs in the Rainbow area, we will realize that the sabkha-forming process had to progress laterally over the area several times. As pointed out above, the sabkha deposits of the Rainbow area are considerably broader than the six-mile circle in which Bebout studied them. Now, even if we were to take them as only eight miles wide, this would require something like 7,000 years of coastal deposition to form just one or two of the sabkha cycles. Since the progressing desert coast line had to sweep over the area numerous times to form the 20 cycles observed by Bebout, at least 70,000 years were thus required for the actual forming process, for the entire series. In addition to this we must allow extra time for the necessary coast-line subsidence (sinking), or rise in sea level, before the beginning of each new cycle of deposition. One of these two kinds of processes has to take place before the sea begins to build another sabkha on top of the old one. Since land subsidence and sea-level elevations are both very slow processes,[36] we will have to at least double the amount of time just stated, in order to provide for the formation of a 20-cycle deposit 8 miles in width. (And let us remember that these make up only about 150 feet of the 4,000 to 5,000 feet of