

The formation of dolostone is even more certainly a slow process than the formation of limestone. The only source of magnesium for the making of dolostone is the ionic magnesium which is dissolved in the water. Most dolostone has been formed by the conversion of calcium carbonate sediments, as is evident from the presence of dolomitized fossils in it. (Marine animals and plants do not form dolomite skeletal parts.) The conversion of the skeletal materials and sediment particles to dolomite requires an extensive process of water circulation in the sediment mass. This has to be accomplished while there is still an abundance of pores, and while magnesium-rich water is available. It is evident that dolostone not only forms slowly at the present time, but also that the formation rate of at least most deposits of it has always been slow. This is due to the fact that the magnesium content of sea water, and of other natural waters, is very low, and the laws of solution and ion replacement have been stable as long as the seas have existed. Even in those parts of the world where there is evidence that the magnesium content of the water was at times increased by volcanic-hydrothermal activity, we still can not postulate a truly rapid formation.<sup>12</sup> One can then safely regard the many thick, layered deposits of limestone and dolostone as indicating long periods of time.

It is true that the types of age indicators which we have been considering are not as precise as the counting of growth rings on a clam shell, but they are based on valid scientific principles of observation. For example, we take into consideration the rate of settling of the particles for shale as contrasted with those of sandstone; and we contrast the formation of most limestones with both of these, because they are formed by an entirely different process. These methods of estimation result in dependable (though not precise) minimum ages. Such minimum ages can be a very useful, simple aid to understanding God's works in nature; though for more elaborate scientific investigations more precise methods must be used.

#### Reliability of Many Geologic Observations

In the preceding pages we have seen some examples of how specific meanings can be derived from rock layers, and we will encounter more such cases as we take up other types of sedimentary deposits. Sometimes those who are unfamiliar with the types of rock layers, and the distinctive characteristics of them, doubt the ability of man to learn past history in this way. Some even go so far as to say that we can know only what has been observed while the process is taking place. Actually this is an unreasonable position to take, because we all realize the validity of some conclusions which do not have a direct observational basis. When we find an empty clam shell which has washed up on to the seashore by incoming waves, we have no trouble in believing that the shell was built by a clam. It is true that we have no historical record of that clam's life, and no way to fully prove that it ever lived. Nevertheless, by the reasoning and observational powers which God gave us we know that this clam shell once harbored a living clam animal. We have seen