

the Grand Canyon strata could have been formed rapidly. (Just as misleading is their failure to reckon with the significance of the alternating of marine and non-marine formations in the Canyon.)

Besides recognizing the ancient erosional surfaces in the Canyon strata we must also consider the significance of the main body of the Redwall Limestone formation. Here is an enormous expanse of unusually pure limestone (most of it over 98% CaCO_3 and $\text{CaMg}(\text{CO}_3)_2$) which has a thickness of 500 to 700 feet. It is abundantly supplied with marine fossils--in stark contrast to the formations which lie directly above it, only 2 of which possess any marine fossils. Furthermore, there are many, layered, in situ growth mats of fossilized, lime-secreting algae embedded in the rock in the normal position in which the mats grew (McKee and Gutschick, 1969, p. 104, 554, and Plate 15). No amount of speculation can produce a rational one-year-Flood explanation for such a geologic formation. To suppose that it was precipitated rapidly out of the ocean water is utterly unreasonable from the standpoints of (1) the amount of CaCO_3 (calcium carbonate) which supersaturated ocean water can contain and release, (2) the fossils, which obviously are not precipitated, and (3) the fact that the Flood was a convulsive event, not able to permit the quiet settling of 500 feet of pure CaCO_3 and $\text{CaMg}(\text{CO}_3)_2$. It is also utterly unreasonable to postulate that the components of this great body of limestone were concentrated and washed into place by the Flood, because (1) any hydraulic cataclysm which could bring about such a massive transport as that, in the allowed short time, would mix the carbonate shell materials and other grains with many foreign kinds of rock components, (2) there is no way that in situ algal growth mats could develop during such a high degree of agitation. (And if they were to develop, they--along with the many other very delicate fossils of that geologic formation--would have been crushed with the immediate adding of the huge weight of one-half mile of sediments dumped on top of them before there was time for even the beginning of the rock cementation process.) Most creationists seem to be unaware of these and other enormous problems which make the "Flood geology" explanation of the deposition of the earth's sedimentary cover completely incompatible with the great amounts of carefully collected data which are now available. As Christians we should all feel a solemn obligation to collect and use the available data before formulating a hard-and-fast opinion as to how the earth's crust was formed. There is a great abundance of carefully collected, published data readily available for studying the Redwall Limestone, and creationists who discuss the Grand Canyon have an obligation to use it; e.g., see the Bibliography by Dale Nations (Nations, 1975, p. 57-59).

Those who believe that superficial, non-microscopic studies can sufficiently reveal the nature of the Redwall and other similar rock formations have been badly misled. No amount of study of gross stratigraphy or of the chemical nature of limestone layers can reveal the means by which those layers were formed. For that, one must make microscopic, petrologic studies, and look for the marks and structures left by organic growth and by cementation processes. Until young-earth creationists learn to use thorough and objective methods in studying and describing the various geologic formations of the earth, they can not expect professional scientists and science teachers to accept or have confidence in creationist publications.

4. Coral Reefs and Evaporite Strata in the Oil Fields of Canada and Michigan

Near the beginning of this Part III we referred to the fact that practically all young-earth creationists have neglected to examine or study the buried, ancient reefs and their evaporite coverings. (Evaporites are water-soluble minerals which