Grand Cayman Island in the Bahamas off the east coast of Florida

The Limestone Connection

The one property all limestones have in common is calcium carbonate as an ingredient. Geologists describe a variety of different forms of limestone, often naming them for where they form or the fossils and other materials they contain.

Reef limestones are mainly composed of the skeletons of marine organisms, such as corals. Today coral reefs grow in warm seas, around places such as the Grand Bahamas and the Hawaiian Islands, and along the Great Barrier Reef of Australia. The beautiful blue-green waters associated with these areas indicate lime-secreting blue-green algae. Sections of the Redwall Limestone in the Grand Canyon include fossil corals and other reef-dwelling organisms. These observations suggest that the area where the Redwall Limestone was deposited was a warm, tropical sea. Page 25 shows the blue-green water around the Bahama Islands, where calcareous ooze is being deposited.

Chalk is composed of almost pure calcite. A powdery, fine-grained rock, chalk may contain small amounts of silt or mud. It may be composed of tiny calcite disks produced by a tiny plant called a coccolith. Coccoliths once lived in shallow seas. Chalk may also form from broken shells or by chemical precipitation of calcium carbonate. The white cliffs of Dover (England) are composed of chalk that was deposited when the area was below sea level. Much of the chalk that exists on Earth today was deposited on continental shelves around 70 million years ago when the areas were covered by much deeper water than today.