



FIGURE 5.1

The sketch, *top above*, shows a cross section of the Earth's surface prior to 3.5 billion years ago when the crust was relatively flat and covered by water.

The lower sketch shows the surface of the globe after the great vertical separation of the Earth's crust into two distinct types of rocks. The heavy (dense) basaltic rocks formed deep interconnected basins into which the waters were gathered. The lighter granitic rocks rose to form the continents.

have been involved. It is thought that enormous thermal convection currents within the upper mantle were initiated as the Earth attempted to cool itself. These forces somehow combined to differentiate the Earth's crust into light continents and heavy ocean basins. Although a general picture emerges as to how this separation may have been accomplished, the exact cause and mechanisms remain undetermined.

In any event, geologists believe that during the period from 3.5 to 2.5 billion years ago, the worldwide building of continents through successive intrusions of granitic rock took place. At the end of this period, the continental cratons stood as high platforms above the surrounding basins into which the waters of the Earth had been gathered. For the most part, the era of great vertical movement of the Earth's crust had ended. Henceforth, erosion, uplift, and the