FIGURE 5.2.

Fault block mountains. A view from the Panamint Mountains, California, across to the Sierra Nevada (skyline). The Argus Range, *left middle*, is an upfaulting of Plio-Pleistocene basalts. (Courtesy W. Hamilton.)

essentially lateral movement of the Earth's crust would govern the shape of the land.

THE FLOATING CONTINENTS

An obvious question needs to be asked at this point. If erosion has been wearing down mountains and carrying their sediments to ocean basins for the last 2.5 billion years, why haven't the mountains become flat plains and the ocean basins filled to the brim with sediments? Why isn't the surface of the Earth one continuous mud flat?

Part of the answer lies in the buoyancy of the continental plates. When the upper layers of the mountains are stripped away by erosion, load (weight) is removed, and the mountains move higher. They are floating on a semi-molten underlayer.

This principle can be observed as a ship is unloaded in the harbor. As heavy cargo is removed, the ship floats higher above the water. This process in continental plates is best visualized in the faultblock mountains of Nevada and Utah and has given the area the distinctive name of Basin and Range Country. The mountains in effect grow as fast or faster than erosion can lower them. Growth and erosion are in such good balance that continents are essentially permanent features.