

plants that have been buried in the dark-colored sedimentary rocks known as carbonaceous shales.

What would happen if this large quantity of carbon stored in sedimentary rocks was somehow returned to the atmosphere? The atmosphere of the Earth would be returned to its original primordial state. The Earth would again be shrouded in a cloud of carbon dioxide. This is the state of the atmosphere on the planet Venus today.

It is interesting to note that futuristic proposals for space colonization call for seeding the atmosphere of Venus with blue-green algae. In this way it is hoped that the blue-green algae would convert the CO<sub>2</sub> on Venus to oxygen. This experiment would probably be a failure, because Venus lacks water in liquid form. Bodies of water are necessary for blue-green algae to propagate and for dissolving the CO<sub>2</sub> and forming sedimentary rocks. The unique development of our atmosphere and its constant cycle or renewal is dependent upon volcanic processes from the Earth's interior, our oceans, and geologic, chemical, and biologic processes. It is truly a masterpiece of design and engineering.

### **THE ENERGY SOURCE FOR INITIAL LIFE**

It is obvious today that we need energy for living organisms to exist. Plants capture energy from the Sun and provide animals not only with oxygen but also with the energy they store in their seeds, nuts, fruits, and leaves. In Chapter 6 we discussed some hypothetical

FIGURE 7.14.

Tube worms, clams, and crabs at a respectful distance from a 350°C (662°F) hydrothermal hot vent on the sea floor at 2600 meters (1.62 mi.) depth near the East Pacific Rise. (Photo by Dr. Thierry Juteau, Universit e Louis Pasteur, Strasbourg, France. Courtesy Stephen Miller, Rise Expedition photo archive, University of California at Santa Barbara.)

