

CHAPTER 8

LIFE IN THE SEA AND IN THE AIR

Then God said, "Let the waters teem with swarms of living creatures, and let birds fly above the earth in the open expanse of the heavens."

Genesis 1:20

LIFE IN THE SEA

The most significant landmark in the geologic time scale occurred 570 million years ago. Almost 90% of the Earth's history had elapsed by that time in what is known as the *Precambrian* era. Algal plant life had held sway in the oceans for almost 3 billion years. A few muffled footsteps and backstage whispers of animal life were heard. Then, quite suddenly, the curtain on the next act in the drama of life was lifted.

This act opened with almost the entire cast on stage. So sudden was the widespread appearance of the primitive forms of almost all major categories of invertebrate animals -- worms, trilobites, sea scorpions, jellyfish, starfish -- that this event is known to geologists as the *Cambrian explosion*. The waters of the Earth literally teemed with many different living creatures.

From the beginning of the Cambrian period to the present is known as the *Phanerozoic Eon* -- the era of manifest or exposed life. The transition from the Precambrian era is marked by a juncture comparable to the invention of writing. Before written history there were only scattered fragments of pottery, a few cave paintings, and tribal legends to tell us about our past. But after the invention of writing, people were able to keep historical records of events. Although there are still gaps in the record, the appearance of fossils has made possible a comprehensive history book, written in the stone pages of sedimentary rocks (see figures 8.1 and 8.2).

The main reason for the great improvement in both the quantity and quality of the fossil record is that many marine animals appeared