

there is nothing. Further, we should also expect in the next 100 million years of the Cambrian period and into the Devonian period (the Age of Fishes) to find transitions within the Metazoa phyla and also something leading up to fishes. There is nothing. There are no transitional forms.

We have no transitional forms at all: none leading up to the Metazoa phyla, none within the Metazoa phyla, and none leading to the fish. The lack of evidence is in direct conflict with the Darwinian theory of evolution. How are these major gaps to be explained?

Some scientists have devoted their whole professional careers to the search for the missing transitional forms, to no avail. Still the traditional Darwinist holds out for discovery of the missing links. He still claims the evidence lies buried somewhere in the fossil records.

Others have faced the facts and feel it is time to modify evolutionary theory to account for the lack of transitional forms in the fossil record. One such modification is the new theory of punctuated equilibrium.

Punctuated Equilibrium. The theory of punctuated equilibrium holds that life did not evolve in the slow uniform method that Darwin envisioned but rather in rapid evolutionary bursts of major change called *adaptive radiations*. The Cambrian explosion of marine life was such an adaptive radiation. We will encounter other adaptive radiations -- amphibians, reptiles, and mammals -- as we explore animal life on the land in the next chapter. The term will be used solely in a descriptive sense.

This new theory of punctuated equilibrium envisions that life doesn't change at all for very long periods of time. Then in a short period of geologic time, whole new forms of life appear and rapidly radiate into new varieties. Change does not come in small steps, but in giant leaps. When all the ecological niches become occupied by the new life forms, life becomes stable again. It settles down to a long period of static equilibrium. Niles Eldredge of the American Museum of Natural History and S. J. Gould of Harvard are the originators and major proponents of this theory.

The theory of punctuated equilibrium accounts very well for the huge gaps in the fossil record. It does correlate with the evidence. It makes sense. But now we have to face the central question. Does it explain anything? Or are the terms *adaptive radiation* and *punctuated equilibrium* merely well-chosen words to describe the observed evidence?