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ENGL 1013

Date

From One Frog to Another

The metamorphosis from egg to tadpole and froglet to frog is one of the wondrous transformations in nature. A better example of the mysterious and beautiful cycle of life would be hard to find. The Buddha himself must have contemplated and perhaps emulated the innocuous yet inscrutable expression on the face of the lowly frog.

Frogs, like bats, birds, bears, and human beings, begin as a fertilized egg, an incredibly compact and self-contained universe of energy and potential growth. The egg is the alpha and omega, the reason for and the result of the genetic dance of life. The female frog lays hundreds of eggs at one time in a pond where the eggs float on the water in a jelly mass or cluster. The power of the sun heating the pond's surface and the nutrients inside each egg induce the cells in the nucleus to divide and divide again. The eggs will soon hatch into tadpoles.

The tadpole is an odd little creature and at first glance resembles a wriggling black sperm cell. This resemblance did not go unnoticed by the ancient Greeks who believed that the writhing springtime globs of tadpoles found in ponds near the foot of Mount Olympus were the ejaculate of the great god Pan, deposited there to fertilize the rivers, streams, and ultimately the hills and valleys of Hellas herself. When a tadpole hatches, it has no legs and resembles a small fish. Tiny gills allow it to breathe underwater where the little tadpole swims, eats plants and algae, and grows for several weeks. During this time, the tadpole starts to develop lungs so that it will be able to breathe out of water when it becomes a frog. The tadpole also starts to grow two hind legs, which it uses to good advantage by leaping around the pond to escape predators.

Near the end of its time in the water, the tadpole sprouts two front legs. It is starting to look more like a frog but still has a comparatively long tail.

When Neil Armstrong stepped off the lunar lander during the 1969 moon mission, the media hailed it as one of the greatest moments in the history of life on planet Earth. They compared it to when the amphibians took their first steps on dry land at the end of the Devonian Era approximately 400 millions years ago. Young frogs, or froglets, recreate that event millions of times each year. Days before emerging from the pond, the tadpole stops eating. It uses the nutrients stored in its tail as food. Finally, with only a stub for a tail, the ex-tadpole hops out of the water and begins the next phase of life as a froglet. At first, the new frog is very small and is unfortunately on the menu of many predators. Snakes, birds, spiders, and even large mammals line up to devour the tasty young morsels. The froglets have also changed their own diets and now eat insects, worms, and other tiny invertebrates. Young frogs will grow for about two to four years before becoming breeding adults.

When adult frogs are ready to breed, the male frogs call or sing to the females, announcing their readiness and fitness to mate. The females can tell by their voices just how ardent their male counterparts are. Frogs congregate in and around ponds or even rain-filled ruts in dirt roads. They mate vigorously en masse, and these frog orgies can be heard for miles and are a pleasant reminder to humans that springtime has arrived. The females lay their fertilized eggs, and the process begins again.

The numbers of frogs are declining worldwide. It is sad to think that one day their voices might be stilled. In our haste to kill weeds and insects on our crops and in our gardens, we may be irrevocably destroying a simple, yet ebullient example of nature's transformation and evolution.