

IV

CLOUDBURST!

Hundreds of miles to the southeast of Death Valley, ominous white clouds began to gather high above Mexico's Sonoran Desert. The clouds had picked up moisture over the Gulf of Mexico. Now hot air rising from the desert hit the cool, moist air in the clouds, and the air began to churn.

A few hours later the sky was purple-black and a thunderhead many thousands of feet thick hung over the desert. From time to time lightning lit the sky. As the day wore on, the layers of ice, snow, and rain in the thunderhead became thicker and heavier. Finally updrafts could no longer hold the rain within the cloud. Rain began to fall, cold and heavy, on the desert below.

Now the wind turned cold and violent. With a roar, a gust tore across the desert, pushing rain in front of it and

yanking plants out of the earth. The wind slammed a huge saguaro. The forty-foot giant toppled slowly and silently; then its seven tons smacked the earth, and the earth shuddered.

The cactus bounced, then lay still. It had grown for well over one hundred years. But it would grow no more.

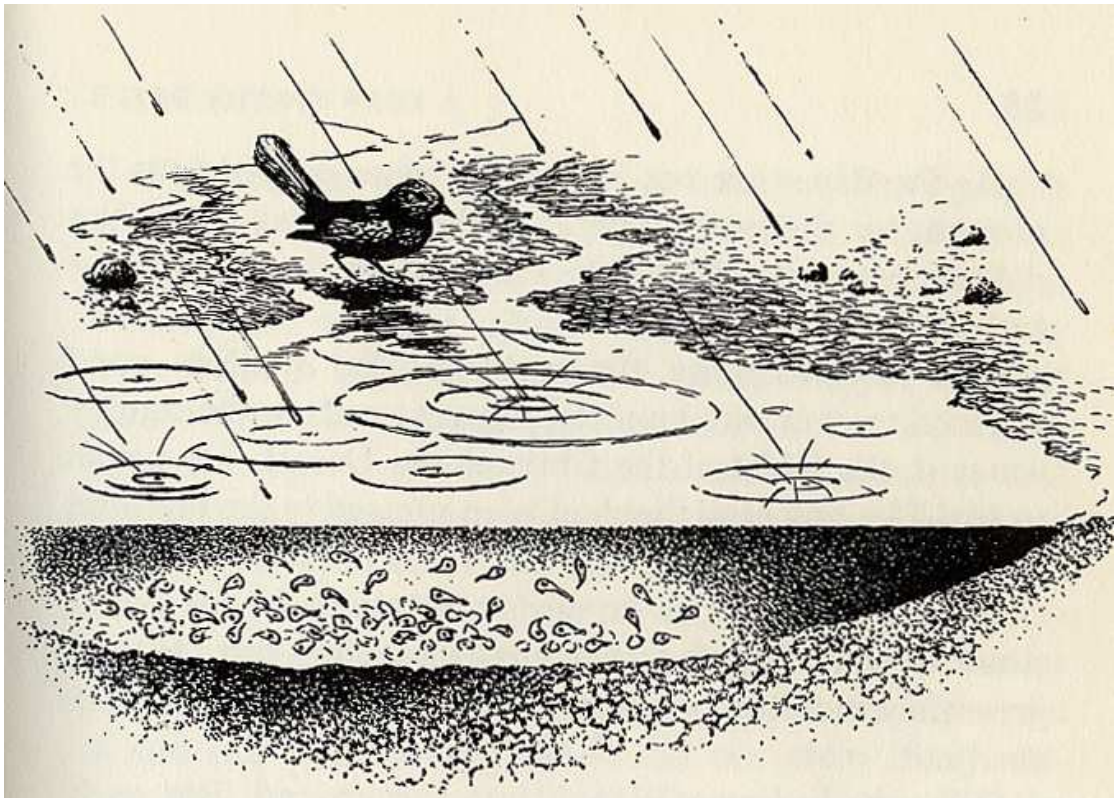
A few yards from the saguaro several raindrops ran together, forming a trickle. The trickle rolled over the dry, hard ground. At the bottom of a small slope it joined another trickle and added inches to its width. Twisting and rolling, it found its way to a dry wash carved into the ground during thunderstorms long forgotten. Here it met other streams and became a river many yards wide and several feet deep.

The river gained speed and strength and seemed to leap across the desert. It picked up a boulder weighing half a ton and pushed it along as if it were a huge ball of cotton. It reached into burrows. It pulled out rodents and spiders and other creatures and carried them along.

A scorpion rode for an instant on the crest of a wave, then disappeared into the muddy water and did not rise again. A drowned snake hit the branches of a shrub along the edge of the river, dangled a moment, then was swept on.

At a bend in the river a soaked coatimundi, clinging to a dead limb, was flung against the bank; he clawed frantically, struggled up, and dropped, exhausted, on the ground.

The rain continued for several hours before it gradually slowed, then stopped. The river dwindled to a trickle. In the wash lay many dead animals and uprooted trees and plants. In a few short hours the flood had brought incredible destruction.



Yet as the flood had taken away life it had also brought life. It had picked up seeds of paloverde trees and pounded them against rocks, breaking open the seed coats. It had accomplished what no amount of soaking could accomplish, for only now could the seeds germinate.

The flood had provided water for plants and seeds; now they, in turn, would provide food for animals for many months to come.

Far to the east, new storms began. In the northern Chihuahuan Desert clouds formed over a dry lake—a low area where once, in another age, a small lake stood.

The mud of the dry lake was rock-hard. Caked in it were pebbles and rocks, bits of plants, and many tiny eggs. Now the rain dampened and softened the mud and a pond began to form. When the storm ended almost a foot of muddy water covered the lowest part of the old dry lake.

As the day wore on, very little water seeped into the ground, for the ground beneath the mud was hard. Nor did the water run off, for the lake bed was lower than the surrounding land.

The next morning the water in the shallow pond warmed to over one hundred degrees; and, in the muddy water in the midst of the Chihuahuan Desert, life began to stir! The tiny eggs that had been pressed in the dry mud hatched into six-legged larvae with broad heads and elongated bodies. The larvae swam about in the warm water. As hours passed, they grew incredibly fast. As they grew they moulted often, and at each moult they lengthened out.

Still very little water sank into the ground. But each day perhaps half an inch evaporated.

One morning a larva moulted again and became an adult fairy shrimp—a small crustacean about an inch long, with a large head and a long segmented body. On his thorax were eleven pair of leg-like appendages. Behind his thorax stretched a flattened, tail-like abdomen. The fairy shrimp was not a true shrimp, but he clearly resembled his relatives of the sea. He swam about rapidly and gracefully in the muddy water.

The fairy shrimp had one small eyespot in the middle of his forehead and two large compound eyes. His compound eyes were dark. They were on stalks that jutted out from the sides of his head.

The sun shone brightly, and the fairy shrimp saw the light from the sun. He swam upside-down with his appendages directed toward the light. He beat his appendages rhythmically and shot through the water, glided gracefully, then zoomed away again.

While the fairy shrimp swam, he breathed through gills at the end of his appendages. His gills took oxygen from the water and released carbon dioxide. As his appendages moved, they set up a current that flowed over his body from front to back. Some of the current slipped out and passed through bristles on the ends of his legs. The bristles caught tiny bits of plant and animal matter and pushed them into another current along the center of his body. This current moved from back to front, carrying the food into the fairy shrimp's mouth.

Less than a week after the cloudburst, only six inches of water remained in the temporary pond. Perhaps rain would fall again soon—but it did not seem likely. Although a few thunderheads still lingered in the sky, the nearest was over one hundred miles away.

As the fairy shrimp swam, he darted now and then to the mud at the bottom of the pond and rested. Then he beat his appendages and scooted about again, breathing and eating all the while.

Now many others of his kind swam about near him. A female darted by, and the fairy shrimp swam to her. He clasped her with his large clasping antennae. The fairy shrimp transferred his spermatazoa to the female. Then she swam away. Other males found other females. Inside the large egg pouch of each female, fertilized eggs began to develop.

Still the water continued to evaporate.

One morning rain clouds appeared on the horizon and moved slowly across the sky. Perhaps the dry lake would again be flooded! These clouds, too, carried moisture from the Gulf of Mexico, but they did not carry much. As they passed over the pond where the fairy shrimp

swam, they dropped a little rain. But the rain evaporated high over the desert. Not a drop reached the ground.

Finally one day less than an inch of water remained in the pond. As the day wore on, this, too, slowly evaporated. The fairy shrimp squirmed and wriggled on top of each other. Their gills could not take oxygen from the air. They had to have water in order to breathe.

Finally they no longer had water. One by one, the fairy shrimp died.

The sun shone down on the mud and on the limp bodies of the fairy shrimp and dried them. Caked in the drying mud were thousands of tiny fertilized eggs. The shells of the eggs were thick. As days passed and the mud in the dry lake cracked and curled, the eggs did not dry out. They were well protected. They could remain dormant for many years, perhaps many decades.

Some day another summer cloudburst would flood the dry lake, and in the warm water the dormant eggs would hatch and develop rapidly. In a few days the dry lake would again be filled with fairy shrimp. Like their parents, the fairy shrimp would swim about gracefully—as long as the desert pond lasted—eating and breathing as they swam, their limbs toward the sun.

