

showed him a giant mushroom—which they were baking to serve to guests the following day. The professor with the book had just been verifying its edibility. I imagined the mushroom, wrinkled, black, and big as a dinner plate, erupting overnight mysteriously in the Bings' living room—from the back of an upholstered couch, say, or from a still-damp rug under an armchair.

Alas, the story as I had fixed it in my mind proved to be only partly true. The Bings often cook wild mushrooms, and they know what they're doing. This particular mushroom had grown outside, under a sycamore, on high ground that the flood hadn't touched. So the flood had nothing to do with it. But it's still a good story, and I like to think that the flood left them a gift, a consolation prize, so that for years to come they will be finding edible mushrooms here and there about the house, dinner on the bookshelf, hors d'oeuvres in the piano. It would have been nice.

10



Fecundity

Annie Dillard

Pilgrim at Tinker Creek

1974

I

I wakened myself last night with my own shouting. It must have been that terrible yellow plant I saw pushing through the flood-damp soil near the log by Tinker Creek, the plant as fleshy and featureless as a slug, that erupted through the floor of my brain as I slept, and burgeoned into the dream of fecundity that woke me up.

I was watching two huge luna moths mate. Luna moths are those fragile ghost moths, fairy moths, whose five-inch wings are swallow-tailed, a pastel green bordered in silken lavender. From the hairy head of the male sprouted two enormous, furry antennae that trailed down past his ethereal wings. He was on top of the female, hunching repeatedly with a horrible animal vigor.

It was the perfect picture of utter spirituality and utter degradation. I was fascinated and could not turn away my eyes. By

watching them I in effect permitted their mating to take place and so committed myself to accepting the consequences—*all* because I wanted to see what would happen. I wanted in on a secret.

And then the eggs hatched and the bed was full of fish. I was standing across the room in the doorway, staring at the bed. The eggs hatched before my eyes, on my bed, and a thousand chunky fish swarmed there in a viscid slime. The fish were firm and fat, black and white, with triangular bodies and bulging eyes. I watched in horror as they squirmed three feet deep, swimming and oozing about in the glistening, transparent slime. Fish in the bed!—and I awoke. My ears still rang with the foreign cry that had been my own voice.

For nightmare you eat wild carrot, which is Queen Anne's lace, or you chew the black stamens of the male peony. But it was too late for prevention, and there is no cure. What root or seed will erase that scene from my mind? Fool, I thought: child, you child, you ignorant, innocent fool. What did you expect to see—angels? For it was understood in the dream that the bed full of fish was my own fault, that if I had turned away from the mating moths the hatching of their eggs wouldn't have happened, or at least would have happened in secret, elsewhere. I brought it upon myself, this slither, this swarm.

I don't know what it is about fecundity that so appalls. I suppose it is the teeming evidence that birth and growth, which we value, are ubiquitous and blind, that life itself is so astonishingly cheap, that nature is as careless as it is bountiful, and that with extravagance goes a crushing waste that will one day include our own cheap lives, Henle's loops and all. Every glistening egg is a *memento mori*.

After a natural disaster such as a flood, nature "stages a come-

back." People use the optimistic expression without any real idea of the pressures and waste the comeback involves. Now, in late June, things are popping outside. Creatures extrude or vent eggs; larvae fatten, split their shells, and eat them; spores dissolve or explode; root hairs multiply, corn puffs on the stalk, grass yields seed, shoots erupt from the earth turgid and sheathed; wet muskrats, rabbits, and squirrels slide into the sunlight, mewling and blind; and everywhere watery cells divide and swell, swell and divide. I can like it and call it birth and regeneration, or I can play the devil's advocate and call it rank fecundity—and say that it's hell that's a-poppin'.

This is what I plan to do. Partly as a result of my terrible dream, I have been thinking that the landscape of the intricate world that I have painted is inaccurate and lopsided. It is too optimistic. For the notion of the infinite variety of detail and the multiplicity of forms is a pleasing one; in complexity are the fringes of beauty, and in variety are generosity and exuberance. But all this leaves something vital out of the picture. It is not one pine I see, but a thousand. I myself am not one, but legion. And we are all going to die.

In this repetition of individuals is a mindless stutter, an imbecilic fixedness that must be taken into account. The driving force behind all this fecundity is a terrible pressure I also must consider, the pressure of birth and growth, the pressure that splits the bark of trees and shoots out seeds, that squeezes out the egg and bursts the pupa, that hungers and lusts and drives the creature relentlessly towards its own death. Fecundity, then, is what I have been thinking about, fecundity and the pressure of growth. Fecundity is an ugly word for an ugly subject. It is ugly, at least, in the egg animal world. I don't think it is for plants.

I never met a man who was shaken by a field of identical

blades of grass. An acre of poppies and a forest of spruce boggle no one's mind. Even ten square miles of wheat gladdens the hearts of most people, although it is really as unnatural and freakish as the Frankenstein monster; if man were to die, I read, wheat wouldn't survive him more than three years. No, in the plant world, and especially among the flowering plants, fecundity is not an assault on human values. Plants are not our competitors; they are our prey and our nesting materials. We are no more distressed at their proliferation than an owl is at a population explosion among field mice.

After the flood last year I found a big tulip-tree limb that had been wind-thrown into Tinker Creek. The current dragged it up on some rocks on the bank, where receding waters stranded it. A month after the flood I discovered that it was growing new leaves. Both ends of the branch were completely exposed and dried. I was amazed. It was like the old fable about the corpse's growing a beard; it was as if the woodpile in my garage were suddenly to burst greenly into leaf. The way plants persevere in the bitterest of circumstances is utterly heartening. I can barely keep from unconsciously ascribing a will to these plants, a do-or-die courage, and I have to remind myself that coded cells and mute water pressure have no idea how grandly they are flying in the teeth of it all.

In the lower Bronx, for example, enthusiasts found an ailanthus tree that was fifteen feet long growing from the corner of a garage roof. It was rooted in and living on "dust and roofing cinders." Even more spectacular is a desert plant, *Ibervillea sonora*—a member of the gourd family—that Joseph Wood Krutch describes. If you see this plant in the desert, you see only a dried chunk of loose wood. It has neither roots nor stems; it's like an old gray knothole. But it is alive. Each year before the rainy season comes, it sends out a few roots and

shoots. If the rain arrives, it grows flowers and fruits; these soon wither away, and it reverts to a state as quiet as driftwood.

Well, the New York Botanical Garden put a dried *Ibervillea sonora* on display in a glass case. "For seven years," says Joseph Wood Krutch, "without soil or water, simply lying in the case, it put forth a few anticipatory shoots and then, when no rainy season arrived, dried up again, hoping for better luck next year." That's what I call flying in the teeth of it all.

(It's hard to understand why no one at the New York Botanical Garden had the grace to splash a glass of water on the thing. Then they could say on their display case label, "This is a live plant." But by the eighth year what they had was a dead plant, which is precisely what it had looked like all along. The sight of it, reinforced by the label "Dead *Ibervillea sonora*," would have been most melancholy to visitors to the botanical garden. I suppose they just threw it away.)

The growth pressure of plants can do an impressive variety of tricks. Bamboo can grow three feet in twenty-four hours, an accomplishment that is capitalized upon, *legendarily*, in that exquisite Asian torture in which a victim is strapped to a mesh bunk a mere foot above a bed of healthy bamboo plants whose woodlike tips have been sharpened. For the first eight hours he is fine, if jittery; then he starts turning into a colander, by degrees.

Down at the root end of things, blind growth reaches astonishing proportions. So far as I know, only one real experiment has ever been performed to determine the extent and rate of root growth, and when you read the figures, you see why. I have run into various accounts of this experiment, and the only thing they don't tell you is how many lab assistants were blinded for life.

The experimenters studied a single grass plant, winter rye. They let it grow in a greenhouse for four months; then they

gingerly spirited away the soil—under microscopes, I imagine—and counted and measured all the roots and root hairs. In four months the plant had set forth 378 miles of roots—that’s about three miles a day—in 14 million distinct roots. This is mighty impressive, but when they get down to the root hairs, I boggle completely. In those same four months the rye plant created 14 *billion* root hairs, and those little strands placed end-to-end just about wouldn’t quit. In a single *cubic inch* of soil, the length of the root hairs totaled 6000 miles.

Other plants use the same water power to heave the rock earth around as though they were merely shrugging off a silken cape. Rutherford Platt tells about a larch tree whose root had cleft a one-and-one-half ton boulder and hoisted it a foot into the air. Everyone knows how a sycamore root will buckle a sidewalk, a mushroom will shatter a cement basement floor. But when the first real measurements of this awesome pressure were taken, nobody could believe the figures.

Rutherford Platt tells the story in *The Great American Forest*, one of the most interesting books ever written: “In 1875, a Massachusetts farmer, curious about the growing power of expanding apples, melons and squashes, harnessed a squash to a weight-lifting device which had a dial like a grocer’s scale to indicate the pressure exerted by the expanding fruit. As the days passed, he kept piling on counterbalancing weight; he could hardly believe his eyes when he saw his vegetables quietly exerting a lifting force of 5 thousand pounds per square inch. When nobody believed him, he set up exhibits of harnessed squashes and invited the public to come and see. The *Annual Report of the Massachusetts Board of Agriculture*, 1875, reported: ‘Many thousands of men, women, and children of all classes of society visited it. *Mr. Penlow* watched it day and night, making hourly observations; *Professor Parker* was moved

to write a poem about it; *Professor Seelye* declared that he positively stood in awe of it.”

All this is very jolly. Unless perhaps I were strapped down above a stand of growing, sharpened bamboo, I am unlikely to feel the faintest queasiness either about the growth pressure of plants, or their fecundity. Even when the plants get in the way of human “culture,” I don’t mind. When I read how many thousands of dollars a city like New York has to spend to keep underground water pipes free of ailanthus, ginko, and sycamore roots, I cannot help but give a little cheer. After all, water pipes are almost always an excellent source of water. In a town where resourcefulness and beating the system are highly prized, these primitive trees can fight city hall and win.

But in the animal world things are different, and human feelings are different. While we’re in New York, consider the cockroaches under the bed and the rats in the early morning clustered on the porch stoop. Apartment houses are hives of swarming roaches. Or again: in one sense you could think of Manhattan’s land as high-rent, high-rise real estate; in another sense you could see it as an enormous breeding ground for rats, acres and acres of rats. I suppose that the rats and the cockroaches don’t do so much actual damage as the roots do; nevertheless, the prospect does not please. Fecundity is anathema only in the animal. “Acres and acres of rats” has a suitably chilling ring to it that is decidedly lacking if I say, instead, “acres and acres of tulips.”

The landscape of earth is dotted and smeared with masses of apparently identical individual animals, from the great Pleistocene herds that blanketed grasslands to the gluey gobs of bacteria that clog the lobes of lungs. The oceanic breeding grounds of pelagic birds are as teeming and cluttered as any

human Calcutta. Lemmings blacken the earth and locusts the air. Grunion run thick in the ocean, corals pile on pile, and protozoans explode in a red tide stain. Ants take to the skies in swarms, mayflies hatch by the millions, and molting cicadas coat the trunks of trees. Have you seen the rivers run red and lumpy with salmon?

Consider the ordinary barnacle, the rock barnacle. Inside every one of those millions of hard white cones on the rocks—the kind that bruises your heel as you bruise its head—is of course a creature as alive as you or I. Its business in life is this: when a wave washes over it, it sticks out twelve feathery feeding appendages and filters the plankton for food. As it grows, it sheds its skin like a lobster, enlarges its shell, and reproduces itself without end. The larvae “hatch into the sea in milky clouds.” The barnacles encrusting a single half mile of shore can leak into the water a million million larvae. How many is that to a human mouthful? In sea water they grow, molt, change shape wildly, and eventually, after several months, settle on the rocks, turn into adults, and build shells. Inside the shells they have to shed their skins. Rachel Carson was always finding the old skins; she reported: “Almost every container of sea water that I bring up from the shore is flecked with white, semitransparent objects. . . . Seen under the microscope, every detail of structure is perfectly represented. . . . In the little cellophane-like replicas I can count the joints of the appendages; even the bristles, growing at the bases of the joints, seem to have been slipped intact out of their casings.” All in all, rock barnacles may live four years.

My point about rock barnacles is those million million larvae “in milky clouds” and those shed flecks of skin. Sea water seems suddenly to be but a broth of barnacle bits. Can I fancy that a million million human infants are more real?

What if God has the same affectionate disregard for us that we have for barnacles? I don't know if each barnacle larva is of itself unique and special, or if we the people are essentially as interchangeable as bricks. My brain is full of numbers; they swell and would split my skull like a shell. I examine the trapezoids of skin covering the back of my hands like blown dust motes moistened to clay. I have hatched, too, with millions of my kind, into a milky way that spreads from an unknown shore.

I have seen the mantis's abdomen dribbling out eggs in wet bubbles like tapioca pudding glued to a thorn. I have seen a film of a termite queen as big as my face, dead white and featureless, glistening with slime, throbbing and pulsing out rivers of globular eggs. Termite workers, who looked like tiny longshoremen unloading the *Queen Mary*, licked each egg as fast as it was extruded to prevent mold. The whole world is an incubator for incalculable numbers of eggs, each one coded minutely and ready to burst.

The egg of a parasite chalcid wasp, a common small wasp, multiplies unassisted, making ever more identical eggs. The female lays a single fertilized egg in the flaccid tissues of its live prey, and that one egg divides and divides. As many as two thousand new parasitic wasps will hatch to feed on the host's body with identical hunger. Similarly—only more so—Edwin Way Teale reports that a lone aphid, without a partner, breeding “unmolested” for one year, would produce so many living aphids that, although they are only a tenth of an inch long, together they would extend into space twenty-five hundred *light-years*. Even the average goldfish lays five thousand eggs, which she will eat as fast as the lays, if permitted. The sales manager of Ozark Fisheries in Missouri, which raises commercial goldfish for the likes of me, said, “We produce, measure,

and sell our product by the ton." The intricacy of Ellery and aphids multiplied mindlessly into tons and light-years is more than extravagance; it is holocaust, parody, glut.

The pressure of growth among animals is a kind of terrible hunger. These billions must eat in order to fuel their surge to sexual maturity so that they may pump out more billions of eggs. And what are the fish on the bed going to eat, or the hatched mantises in the Mason jar going to eat, but each other? There is a terrible innocence in the benumbed world of the lower animals, reducing life there to a universal chomp. Edwin Way Teale, in *The Strange Lives of Familiar Insects*—a book I couldn't live without—describes several occasions of meals mouthed under the pressure of a hunger that knew no bounds.

You remember the dragonfly nymph, for instance, which stalks the bottom of the creek and the pond in search of live prey to snare with its hooked, unfolding lip. Dragonfly nymphs are insatiable and mighty. They clasp and devour whole minnows and fat tadpoles. Well, a dragonfly nymph, says Teale, "has even been seen climbing up out of the water on a plant to attack a helpless dragonfly emerging, soft and rumped, from its nymphal skin." Is this where I draw the line?

It is between mothers and their offspring that these feedings have truly macabre overtones. Look at lacewings. Lacewings are those fragile green insects with large, rounded transparent wings. The larvae eat enormous numbers of aphids, the adults mate in a fluttering rush of instinct, lay eggs, and die by the millions in the first cold snap of fall. Sometimes, when a female lays her fertile eggs on a green leaf atop a slender stalked thread, she is hungry. She pauses in her laying, turns around, and eats her eggs one by one, then lays some more, and eats them, too.

Anything can happen, and anything does; what's it all

about? Valerie Eliot, T. S. Eliot's widow, wrote in a letter to the London *Times*: "My husband, T. S. Eliot, loved to recount how late one evening he stopped a taxi. As he got in the driver said: 'You're T. S. Eliot.' When asked how he knew, he replied: 'Ah, I've got an eye for a celebrity. Only the other evening I picked up Bertrand Russell, and I said to him, "Well, Lord Russell, what's it all about," and, do you know, he couldn't tell me.'" Well, Lord God, asks the delicate, dying lacewing whose mandibles are wet with the juice secreted by her own ovipositor, what's it all about? ("And do you know . . .")

Planarians, which live in the duck pond, behave similarly. They are those dark laboratory flatworms that can regenerate themselves from almost any severed part. Arthur Koestler writes, "During the mating season the worms become cannibals, devouring everything alive that comes their way, including their own previously discarded tails which were in the process of growing a new head." Even such sophisticated mammals as the great predator cats occasionally eat their cubs. A mother cat will be observed licking the area around the umbilical cord of the helpless newborn. She licks, she licks, she licks until something snaps in her brain, and she begins eating, starting there, at the vulnerable belly.

Although mothers devouring their own offspring is patently the more senseless, somehow the reverse behavior is the more appalling. In the death of the parent in the jaws of its offspring I recognize a universal drama that chance occurrence has merely telescoped, so that I can see all the players at once. Gall gnats, for instance, are common small flies. Sometimes, according to Teale, a gall gnat larva, which does not resemble the adult in the least, and which has certainly not mated, nevertheless produces within its body eggs, live eggs, which then hatch within its soft tissues. Sometimes the eggs hatch alive even within the quiescent body of

the pupa. The same incredible thing occasionally occurs within the fly genus *Miastor*, again to both larvae and pupae. "These eggs hatch within their bodies and the ravenous larvae which emerge immediately begin devouring their parents." In this case, I know what it's all about, and I wish I didn't. The parents die, the next generation lives, *ad majorem gloriam*, and so it goes. If the new generation hastens the death of the old, it scarcely matters; the old has served its one purpose, and the direct processing of proteins is tidily all in the family. But think of the invisible swelling of ripe eggs inside the pupa as wrapped and rigid as a mummified Egyptian queen! The eggs burst, shatter her belly, and emerge alive, awake, and hungry from a mummy case which they crawl over like worms and feed on till its gone. And then they turn to the world.

"To prevent a like fate," Teale continues, "some of the ichneumon flies, those wasplike parasites which deposit their eggs in the body tissues of caterpillars, have to scatter their eggs while in flight at times when they are unable to find their prey and the eggs are ready to hatch within their bodies."

You are an ichneumon. You mated and your eggs are fertile. If you can't find a caterpillar on which to lay your eggs, your young will starve. When the eggs hatch, the young will eat any body in which they find themselves, so if you don't kill them by emitting them broadcast over the landscape, they'll eat you alive. But if you let them drop over the fields you will probably be dead yourself, of old age, before they even hatch to starve, and the whole show will be over and done, and a wretched one it was. You feel them coming, and coming, and you struggle to rise. . . .

Not that the ichneumon is making any conscious choice. If she were, her dilemma would be truly the stuff of tragedy;

Aeschylus need have looked no further than the ichneumon. That is, it would be the stuff of real tragedy if only Aeschylus and I could convince you that the ichneumon is really and truly as alive as we are, and that what happens to it matters. Will you take it on faith?

Here is one last story. It shows that the pressures of growth gang aft a-gley. The clothes moth, whose caterpillar eats wool, sometimes goes into a molting frenzy which Teale blandly describes as "curious": "A curious paradox in molting is the action of a clothes-moth larva with insufficient food. It sometimes goes into a 'molting frenzy,' changing its skin repeatedly and getting smaller and smaller with each change." Smaller and smaller . . . can you imagine the frenzy? Where shall we send our sweaters? The diminution process could, in imagination, extend to infinity, as the creature frantically shrinks and shrinks and shrinks to the size of a molecule, then an electron, but never can shrink to absolute nothing and end its terrible hunger. I feel like Ezra: "And when I heard this thing, I rent my garment and my mantle, and plucked off the hair of my head and of my beard, and sat down astonished."

II

I am not kidding anyone if I pretend that these awesome pressures to eat and breed are wholly mystifying. The million million barnacle larvae in a half mile of shore water, the rivers of termite eggs, and the light-years of aphids ensure the living presence, in a scarcely concerned world, of ever more rock barnacles, termites, and aphids.

It's chancy out there. Dog whelks eat rock barnacles, worms invade their shells, shore ice razes them from the rocks and grinds them to a powder. Can you lay aphid eggs faster

than chickadees can eat them? Can you find a caterpillar, can you beat the killing frost?

As far as lower animals go, if you lead a simple life you probably face a boring death. Some animals, however, lead such complicated lives that not only do the chances for any one animal's death at any minute multiply greatly, but so also do the *varieties* of the deaths it might die. The ordained paths of some animals are so rocky they are preposterous. The horsehair worm in the duck pond, for instance, wriggling so serenely near the surface, is the survivor of an impossible series of squeaky escapes. I did a bit of research into the life cycles of these worms, which are shaped exactly like hairs from a horse's tail, and learned that although scientists are not exactly sure what happens to any one species of them, they think it might go something like this:

You start with long strands of eggs wrapped around vegetation in the duck pond. The eggs hatch, the larvae emerge, and each seeks an aquatic host, say a dragonfly nymph. The larva bores into the nymph's body, where it feeds and grows and somehow escapes. Then if it doesn't get eaten it swims over to the shore where it encysts on submersed plants. This is all fairly improbable, but not impossibly so.

Now the coincidences begin. First, presumably, the water level of the duck pond has to drop. This exposes the vegetation so that the land host organism can get at it without drowning. Horsehair worms have various land hosts, such as crickets, beetles, and grasshoppers. Let's say ours can only make it if a grasshopper comes along. Fine. But the grasshopper had best hurry, for there is only so much fat stored in the encysted worm, and it might starve. Well, here comes just the right species of grasshopper, and it is obligingly feeding on shore vegetation. Now I have not observed any extensive grazing of grasshoppers

on any grassy shores, but obviously it must occur. Bingo, then, the grasshopper just happens to eat the encysted worm.

The cyst bursts. The worm emerges in all its hideous length, up to thirty-six inches, inside the body of the grasshopper, on which it feeds. I presume that the worm must eat enough of its host to stay alive, but not so much that the grasshopper will keel over dead far from water. Entomologists have found tiger beetles dead and dying on the water whose insides were almost perfectly empty except for the white coiled bodies of horsehair worms. At any rate, now the worm is almost an adult, ready to reproduce. But first it's got to get out of this grasshopper.

Biologists don't know what happens next. If at the critical stage the grasshopper is hopping in a sunny meadow away from a duck pond or ditch, which is entirely likely, then the story is over. But say it happens to be feeding near the duck pond. The worm perhaps bores its way out of the grasshopper's body, or perhaps is excreted. At any rate, there it is on the grass, drying out. Now the biologists have to go so far as to invoke a "heavy rain," falling from heaven at this fortuitous moment, in order to get the horsehair worm back into the water where it can mate and lay more seemingly doomed eggs. You'd be thin, too.

Other creatures have it just about as easy. A blood fluke starts out as an egg in human feces. If it happens to fall into fresh water it will live only if it happens to encounter a certain species of snail. It changes in the snail, swims out, and now needs to find a human being in the water in order to bore through his skin. It travels around in the man's blood, settles down in the blood vessels of his intestine, and turns into a sexually mature blood fluke, either male or female. Now it has to find another fluke, of the opposite sex, who also just happens to have traveled the same circuitous

route and landed in the same unfortunate man's intestinal blood vessels. Other flukes lead similarly improbable lives, some passing through as many as four hosts.

But it is for gooseneck barnacles that I reserve the largest measure of awe. Recently I saw photographs taken by members of the *Ra* expedition. One showed a glob of tar as big as a softball, jetsam from a larger craft, which Heyerdahl and his crew spotted in the middle of the Atlantic Ocean. The tar had been in the sea for a long time; it was overgrown with gooseneck barnacles. The gooseneck barnacles were entirely incidental, but for me they were the most interesting thing about the whole expedition. How many gooseneck barnacle larvae must be dying out there in the middle of vast oceans for every one that finds a glob of tar to fasten to? You've seen gooseneck barnacles washed up on the beach; they grow on old ship's timber, driftwood, strips of rubber—anything that's been afloat in the sea long enough. They do not resemble rock barnacles in the least, although the two are closely related. They have pinkish shells extending in a flattened oval from a flexible bit of "gooseneck" tissue that secures them to the substratum.

I have always had a fancy for these creatures, but I'd always assumed that they lived near shores, where chance floating holdfasts are more likely to occur. What are they doing—what are the larvae doing—out there in the middle of the ocean? They drift and perish, or, by some freak accident in a world where anything can happen, they latch and flourish. If I dangled my hand from the deck of the *Ra* into the sea, could a gooseneck barnacle fasten there? If I gathered a cup of ocean water, would I be holding a score of dying and dead barnacle larvae? Should I throw them a chip? What kind of a world is this, anyway? Why not make fewer barnacle larvae and give them a decent chance? Are we dealing in life, or in death?

* * *

I have to look at the landscape of the blue-green world again. Just think: in all the clean beautiful reaches of the solar system, our planet alone is a blot; our planet alone has death. I have to acknowledge that the sea is a cup of death and the land is a stained altar stone. We the living are survivors huddled on flotsam, living on jetsam. We are escapees. We wake in terror, eat in hunger, sleep with a mouthful of blood.

Death: W. C. Fields called death "the Fellow in the Bright Nightgown." He shuffles around the house in all the corners I've forgotten, all the halls I dare not call to mind or visit for fear I'll glimpse the hem of his shabby, dazzling gown disappearing around a turn. This is the monster evolution loves. How could it be?

The faster death goes, the faster evolution goes. If an aphid lays a million eggs, several might survive. Now, my right hand, in all its human cunning, could not make one aphid in a thousand years. But these aphid eggs—which run less than a dime a dozen, which run absolutely free—can make aphids as effortlessly as the sea makes waves. Wonderful things, wasted. It's a wretched system. Arthur Stanley Eddington, the British physicist and astronomer who died in 1944, suggested that all of "Nature" could conceivably run on the same deranged scheme. "If indeed she has no greater aim than to provide a home for her greatest experiment, Man, it would be just like her methods to scatter a million stars whereof one might haply achieve her purpose." I doubt very much that this is the aim, but it seems clear on all fronts that this is the method.

^a Say you are the manager of the Southern Railroad. You figure that you need three engines for a stretch of track between Lynchburg and Danville. It's a mighty steep grade. So at fantastic effort and expense you have your shops make nine thou-

sand engines. Each engine must be fashioned just so, every rivet and bolt secure, every wire twisted and wrapped, every needle on every indicator sensitive and accurate.

You send all nine thousand of them out on the runs. Although there are engineers at the throttles, no one is manning the switches. The engines crash, collide, derail, jump, jam, burn. . . . At the end of the massacre you have three engines, which is what the run could support in the first place. There are few enough of them that they can stay out of each others' paths.

You go to your board of directors and show them what you've done. And what are they going to say? You know what they're going to say. They're going to say: It's a hell of a way to run a railroad.

Is it a better way to run a universe?

Evolution loves death more than it loves you or me. This is easy to write, easy to read, and hard to believe. The words are simple, the concept clear—but you don't believe it, do you? Nor do I. How could I, when we're both so lovable? Are my values then so diametrically opposed to those that nature preserves? This is the key point.

Must I then part ways with the only world I know? I had thought to live by the side of the creek in order to shape my life to its free flow. But I seem to have reached a point where I must draw the line. It looks as though the creek is not buoying me up but dragging me down. Look: Cock Robin may die the most gruesome of slow deaths, and nature is no less pleased; the sun comes up, the creek rolls on, the survivors still sing. I cannot feel that way about your death, nor you about mine, nor either of us about the robin's—or even the barnacles'. We value the individual supremely, and nature values him not a whit. It looks for the moment as though I might have to reject

this creek life unless I want to be utterly brutalized. Is human culture with its values my only real home after all? Can it possibly be that I should move my anchor-hold to the side of a library? This direction of thought brings me abruptly to a fork in the road where I stand paralyzed, unwilling to go on, for both ways lead to madness.

Either this world, my mother, is a monster, or I myself am a freak.

Consider the former: the world is a monster. Any three-year-old can see how unsatisfactory and clumsy is this whole business of reproducing and dying by the billions. We have not yet encountered any god who is as merciful as a man who flicks a beetle over on its feet. There is not a people in the world who behaves as badly as praying mantises. But wait, you say, there is no right and wrong in nature; right and wrong is a human concept. Precisely: we are moral creatures, then, in an amoral world. The universe that suckled us is a monster that does not care if we live or die—does not care if it itself grinds to a halt. It is fixed and blind, a robot programmed to kill. We are free and seeing; we can only try to outwit it at every turn to save our skins.

This view requires that a monstrous world running on chance and death, careening blindly from nowhere to nowhere, somehow produced wonderful us. I came from the world, I crawled out of a sea of amino acids, and now I must whirl around and shake my fist at that sea and cry Shame! If I value anything at all, then I must blindfold my eyes when I near the Swiss Alps. We must as a culture disassemble our telescopes and settle down to backslapping. We little blobs of soft tissue crawling around on this one planet's skin are right, and the whole universe is wrong.

Or consider the alternative.

Julian of Norwich, the great English anchorite and theolo-

gian, cited, in the manner of the prophets, these words from God: "See, I am God: see, I am in all things: see, I never lift my hands off my works, nor ever shall, without end. . . . How should anything be amiss?" But now not even the simplest and best of us sees things the way Julian did. It seems to us that plenty is amiss. So much is amiss that I must consider the second fork in the road, that creation itself is blamelessly, benevolently askew by its very free nature, and that it is only human feeling that is freakishly amiss. The frog that the giant water bug sucked had, presumably, a rush of pure feeling for about a second, before its brain turned to broth. I, however, have been sapped by various strong feelings about the incident almost daily for several years.

Do the barnacle larvae care? Does the lacewing who eats her eggs care? If they do not care, then why am I making all this fuss? If I am a freak, then why don't I hush?

Our excessive emotions are so patently painful and harmful to us as a species that I can hardly believe that they evolved. Other creatures manage to have effective matings and even stable societies without great emotions, and they have a bonus in that they need not ever mourn. (But some higher animals have emotions that we think are similar to ours: dogs, elephants, otters, and the sea mammals mourn their dead. Why do that to an otter? What creator could be so cruel, not to kill otters, but to let them care?) It would seem that emotions are the curse, not death—emotions that appear to have devolved upon a few freaks as a special curse from Malevolence.

All right then. It is our emotions that are amiss. We are freaks, the world is fine, and let us all go have lobotomies to restore us to a natural state. We can leave the library then, go back to the creek lobotomized, and live on its banks as untroubled as any muskrat or reed. You first.

* * *

Of the two ridiculous alternatives, I rather favor the second. Although it is true that we are moral creatures in an amoral world, the world's amorality does not make it a monster. Rather, I am the freak. Perhaps I don't need a lobotomy, but I could use some calming down, and the creek is just the place for it. I must go down to the creek again. It is where I belong, although as I become closer to it, my fellows appear more and more freakish, and my home in the library more and more limited. Imperceptibly at first, and now consciously, I shy away from the arts, from the human emotional stew. I read what the men with telescopes and microscopes have to say about the landscape. I read about the polar ice, and I drive myself deeper and deeper into exile from my own kind. But, since I cannot avoid the library altogether—the human culture that taught me to speak in its tongue—I bring human values to the creek, and so save myself from being brutalized.

What I have been after all along is not an explanation but a picture. This is the way the world is, altar and cup, lit by the fire from a star that has only begun to die. My rage and shock at the pain and death of individuals of my kind is the old, old mystery, as old as man, but forever fresh, and completely unanswerable. My reservations about the fecundity and waste of life among other creatures is, however, mere squeamishness. After all, I'm the one having the nightmares. It is true that many of the creatures live and die abominably, but I am not called upon to pass judgment. Nor am I called upon to live in that same way, and those creatures who are are mercifully unconscious.

I don't want to cut this too short. Let me pull the camera back and look at that fork in the road from a distance, in the larger context of the speckled and twining world. It could be that the fork will disappear, or that I will see it to be but one of

many interstices in a network, so that it is impossible to say which line is the main part and which is the fork.

The picture of fecundity and its excesses and of the pressures of growth and its accidents is of course no different from the picture I painted before of the world as an intricate texture of a bizarre variety of forms. Only now the shadows are deeper. Extravagance takes on a sinister, wastrel air, and exuberance blithers. When I added the dimension of time to the landscape of the world, I saw how freedom grew the beauties and horrors from the same live branch. This landscape is the same as that one, with a few more details added, and a different emphasis. I see squashes expanding with pressure and a hunk of wood rapt on the desert floor. The rye plant and the Bronx ailanthus are literally killing themselves to make seeds, and the animals to lay eggs. Instead of one goldfish swimming in its intricate bowl, I see tons and tons of goldfish laying and eating billions and billions of eggs. The point of all the eggs is of course to make goldfish one by one—nature loves the *idea* of the individual, if not the individual himself—and the point of a goldfish is pizzazz. This is familiar ground. I merely failed to mention that it is death that is spinning the globe.

It is harder to take, but surely it's been thought about. I cannot really get very exercised over the hideous appearance and habits of some deep-sea jellies and fishes, and I exercise easy. But about the topic of my own death I am decidedly touchy. Nevertheless, the two phenomena are two branches of the same creek, the creek that waters the world. Its source is freedom, and its network of branches is infinite. The graceful mockingbird that falls drinks there and sips in the same drop a beauty that waters its eyes and a death that fledges and flies. The petals of tulips are flaps of the same doomed water that swells and hatches in the ichneumon's gut.

That something is everywhere and always amiss is part of the very stuff of creation. It is as though each clay form had baked into it, fired into it, a blue streak of nonbeing, a shaded emptiness like a bubble that not only shapes its very structure but that also causes it to list and ultimately explode. We could have planned things more mercifully, perhaps, but our plan would never get off the drawing board until we agreed to the very compromising terms that are the only ones that being offers.

The world has signed a pact with the devil; it had to. It is a covenant to which every thing, even every hydrogen atom, is bound. The terms are clear: if you want to live, you have to die; you cannot have mountains and creeks without space, and space is a beauty married to a blind man. The blind man is Freedom, or Time, and he does not go anywhere without his great dog Death. The world came into being with the signing of the contract. A scientist calls it the Second Law of Thermodynamics. A poet says, "The force that through the green fuse drives the flower/Drives my green age." This is what we know. The rest is gravy.