



Ecocide

BACK HOME, WE BECAME DISTRACTED FROM LUCY'S quest as Annie and I quickly fell back into our mundane routines. There was plenty of homestead work to deal with. Seventeen acres of rural land in Pennsylvania is an opportunity in itself. After twenty years of cultivation, we had established an orchard and a large garden, and grew a lot of our own food, including grapes, berries, and vegetables. We kept ducks and chickens, grew mushrooms on logs, fermented and even distilled our own beverages, designed and built our own buildings, heated with wood, homeschooled Penelope, and preserved food in our root cellar, or by canning or drying. Yet Annie still managed to find time to spin, weave, knit, tutor, and play the fiddle, and sometimes I accompanied her on the guitar. With a steady supply of friends, neighbors, and visitors, our days were full — without having to volunteer for bizarre adventures on behalf of dead relatives.

What remained of the \$10,000 Lucy had originally given us sat in our bank account; the other check sat, uncashed, in my desk drawer. Both served as constant reminders that we had been lured into doing her work by the prospects of easy money. However, the farther we ventured down Lucy's path, the more convoluted it had become. The money she gave us looked more and more like money we were going to have to earn with considerable hard work. And although my "inheritance" was cer-

tainly interesting, it took a lot of time and energy; I wasn't even remotely sure our efforts would lead to any constructive outcome.

Nevertheless, we spent quite a few evenings and many mornings over tea discussing our improbable situation. Our conversations reviewed the events in Newfoundland and Halifax, then we translated what we saw and heard there into terms that we could communicate to others. I started keeping a journal. We began to do research of our own in order to verify or discredit Lucy's theories. Was our culture really in a robbing frenzy? Were humans really acting like disease organisms on the planet? Is environmental degradation as pervasive and ominous as Lucy would have liked us to believe? Or was she an environmental extremist whose theories and warnings were simply to be discounted? We needed to find out the truth.

One nice thing about roofing work in Pennsylvania is that it rains a lot. Not only does this force people to really value a solid roof over their heads (and value competent roofers), but it gives me plenty of time off to do other things — like go to the library and do research.

Annie, Penny, and I spent an entire rainy day at the local university library searching the computer database for information about global warming. We even brought home an armful of books and research journals and spent a few evenings leafing through them. To my surprise, report after report pointed to the same conclusion: the scientists of the world were in agreement that the global climate is actually changing as a result of human activity; we were to blame for the Earth's "fever." As Lucy had warned Cecilia, though, there were powerful business people with deep pockets that loudly condemned this prevailing opinion by saying it was not based on valid science. Various industries had even banded together under the guise of the "Global Climate Coalition" for the apparent purpose of discrediting scientific climate change theories.

Researching further, I learned that the only thing that makes the Earth different from our cold, lifeless moon is

the atmosphere that envelopes our planet. Although the atmosphere holds in heat, creates rain and snow, gives us air to breathe, and enables life to exist, it is actually little more than a gossamer veil draped tightly over the Earth, an extremely thin, protective membrane enclosing the planet. If the Earth were the size of a chicken egg, for example, the entire atmosphere would condense down only to the volume of 1/40th of a water droplet. I had never before considered the delicate nature of the atmosphere; the sky had always looked amazingly broad and immensely powerful. But when I tried one of Lucy's quantum leaps and looked at it from a different perspective, I began to understand that, looking down at the Earth from afar, the sky is only the thinnest of skins. Like humans without *their* skin, the Earth would soon die without its protective covering.

I also found it interesting that the composition of the atmosphere was created by Earth's evolving lifeforms over a period of about six billion years, finally culminating into an intricate, and delicately balanced masterpiece of nature. Furthermore, although ninety-nine percent of the atmosphere is nitrogen and oxygen, I learned that these two gases don't hold in heat. "Greenhouse gases," which make up the leftover one percent, including carbon dioxide, are what help keep the Earth warm. Without them, the Earth would essentially be a cold, dead rock. Annie and I were both fascinated to learn that our atmosphere has maintained a steady temperature on the planet's surface for the past three million years. On the other hand, we found it alarming that too much greenhouse gas can throw the sensitive atmospheric balance off kilter, theoretically overheating the planet. In fact, the Earth's temperature is now rapidly increasing, apparently due to the sudden and excessive release of "ancient heat," as Professor Gaulton had called fossil fuels. And the finger on the thermostat apparently belongs to *Homo sapiens*.

Although Earth-warming greenhouse gases come from natural sources, they're also emitted from smokestacks,

auto exhausts, burning rainforests, furnaces, electrical generators, and many other human activities. Because we've chosen to use mainly fossil fuels, like coal, oil, and gas, to power many of our activities, we've inadvertently increased the amount of greenhouse gases in the atmosphere. With every mile we drive, with every turn of the thermostat, little by little, drop by drop, we've raised the amount of carbon dioxide in the atmosphere to a level significantly higher than it has been in the last 420,000 years, and it's steadily increasing, with no end in sight.

Annie was just as diligent in digging up information at the library as I was. She found it interesting that the industries primarily responsible for our excessive greenhouse gases were in denial about global warming. The people profiting from the extraction, sale, and use of fossil fuels, she discovered, argue that small increases won't do any harm, that plant life will absorb the excess. Although their argument sounded reasonable to Annie, I mulled it around in my mind. I thought about cycles, like water, for instance, moving from ocean to atmosphere to land, and back to the ocean. Carbon just seems to be a slower, less obvious kind of cycle; we breathe it out, plants breathe it in. We're a source; they're a sink. I wondered if it was possible to release so much carbon that we could actually overflow this sink? To use an analogy, I considered our own kitchen sink. When we run water into the sink at the same rate in which it goes out the drain, there's nothing to be concerned about. But when the tap is opened just slightly more, the sink begins to slowly fill up. Eventually, it overflows. According to our research, the scientists of the world were telling us that our atmospheric sink is now filling up and we have to do something before it overflows. Annie agreed that the data we were collecting was corroborating my aunt — Lucy's theories were beginning to ring true.

Still skeptical, however, I contacted my father and his siblings, who were scattered in various cities across the states, and asked them what *they* knew about their sister, Lucy. Maybe they could splash some cold water on my face

by telling me something like Lucy was in and out of psychiatric hospitals all her life. According to them, however, Lucy was sane, although she didn't associate with her siblings much, and they didn't have anything much to say about her. They thought her remains had been cremated and there had been no funeral to attend that they were aware of. Their collectively held opinion seemed to be that she was a recluse; they all seemed a bit put off by the fact that she had never attended family reunions and had only very rarely posted an appearance at any other family events.

I went through Lucy's address book several times, trying to find information about her that her own family couldn't give me. I spoke to a few of her colleagues at the University of Montana. They didn't know anything about extracurricular research Lucy was doing regarding the environment. I talked with her auto mechanic (he didn't have much to offer, except that she was diligent in maintaining her little truck). I inquired, through the university, about her estate, and verified that she did, in fact, have a half million dollars worth of retirement benefits due her. I also talked to her lawyers at length. Although cordial and cooperative over the phone, they weren't much help. They reiterated the information I had read on Lucy's lockbox note. I had one year from the date of her death to find my personal "balance point" and claim her estate for myself. In the meantime, they were to hold the estate in escrow. Not only could they not tell me what a balance point was, but they sounded surprised that I seemed to not know myself. I racked up quite a large phone bill those few weeks, although Lucy paid for it. In the end, it all seemed to get me nowhere.

"Now what?" I asked Annie one morning as I was packing my lunch for a long day of roof repair. "What do you think we should do with Lucy's Goose Chase now?"

"I've been thinking," Annie replied. "Why don't we go back to the beginning — or at least back to Ohio and visit that midwife over there? The one who told you to go to

Newfoundland in the first place. I'd like to meet her anyway."

"You mean Cynthia? She didn't tell me to go to Newfoundland, a crystal told me," I reminded her. "You're probably right, though. We *should* go see her, I certainly don't know what else to do."

When I finally got around to calling Cynthia, she was excited to hear that we had gone to Newfoundland and wanted to know everything that had transpired there. I told her that I could speak more clearly over a dinner table than over a telephone, and suggested that we would probably be available to come to their place for dinner. Cynthia readily took the hint, and invited us for dinner that weekend.

Annie and Cynthia became immediate friends, and, over dinner, chatted about their common interests in gardening and weaving. It was with a bit of effort that I finally steered the conversation toward Lucy and our associated escapades.

"So you think the crystal pointed you in the right direction then, Joe?" Cynthia asked.

"Well, we met a couple of interesting people up in Newfoundland and Nova Scotia and they certainly did have some interesting things to say about Lucy. But I have no idea what to do now. I'd be open to consulting the crystal again," I said, hoping for an easy answer.

"You only need to do that if you know you have to travel but you don't know where. Are you thinking you need to travel again?"

"I don't know *what* we need to do. That's the problem." I described the events that took place in Canada, telling Cynthia about the bees, about Gaulton and Tomasso, and about Lucy's reported paranoia.

"So what have you done since you got back? Have you heard from this Tomasso woman?"

"Nope. What we've done is return to life as normal. I'm swamped with roofing work; I can't just abandon my job for this. We have work to do around our place, too.

We're thinking we need to do more library research or book research or something on these theories of Lucy's to see if we can make more sense out of them."

"Well," Cynthia said, thinking for a moment. "I can probably help you with that. In fact, I know two people to talk to who live nearby. They're researchers at the University of Ohio in Youngstown doing computer modeling of environmental systems. They're both friends of mine. I attended their daughter's birth five years ago. That's how I met them. Anyway, they've come up with some interesting information that might be of use to you. According to them, if you enter current environmental data into a computer and then have the computer extrapolate the data into the future, it says we'll eventually reach a point of environmental collapse. Tom and Lana want very much to get this information published, but it's been discredited by a number of industry scientists. The university won't let them publish their findings until they've verified their data again and can do so without being discredited. The problem is that the industry scientists don't want Tom and Lana's research to become public, and the university gets a large share of its funding from those same industries. So Tom and Lana are between a rock and a hard place."

"I'm not following you," I told Cynthia. "Your friends have some sort of computer program that can predict the future?"

"Well, kind of," Cynthia replied. "It's not exactly that simple. Tom and Lana do systems theory research. . ."

"Wait a second. What is systems theory research?"

"Do you know what a system is?"

"I think so, but feel free to explain," I offered.

At that moment, Cynthia's teenage daughter entered the room carefully carrying a huge roasted chicken on a platter. She set it in the center of the table and stood for a moment admiring the bird, wiping her hands on her apron.

"That's one of ours," she proudly admitted. "I raised it

as a 4-H project. His name was Buddy.” She stared another moment, then abruptly turned and left the room. Penny’s eyes popped open as her jaw dropped. “We’re going to eat *Buddy*?” she mumbled to herself. We all heard her and chuckled.

“That’s the life of a chicken, Penny. Consider this a chicken funeral,” I suggested lamely, trying to make light of the situation, then added, “It sure looks good to me!”

“Smells *wonderful*, Penny. I’m sure it’s quite delicious.” Annie added, giving me a withering look out of the corner of her eye.

Cynthia stood and bent over the table to carve the bird. “What were we talking about?” she asked, digging in with the carving tools. “Oh yeah, systems theory. As I was saying, a system is a group of, ah, interconnected . . . well, *elements* that are organized around some purpose. A weather system, for example. Weather systems have elements of air movement, precipitation, and sun, among other things, all of which work together to make weather. Are you following me?”

“So far.”

“OK. Do you want a drumstick?”

“Sure.” I held out my plate and Cynthia loaded it with a the biggest drumstick I’d ever seen. I could hardly hold the plate with one hand. Annie doesn’t usually eat meat, but Cynthia served her a slice of white meat anyway, then she served herself and the others and sat back down.

“As I was saying,” Cynthia continued, “Lana and Tom developed a computer program where they can plug systems data from the past and present into the program. They can then tell the program to run the data into the future. Please help yourself to some mashed potatoes, by the way. They’re from our garden. Sorry to interrupt. Say you keep track of the average temperatures at noon in Youngstown for the past hundred years. You enter this information into the computer and then ask it to tell you what the average temperature, based on that data, will be at noon in Youngstown fifty years from now. The computer

will do its calculations and then come up with a temperature. If the average temperature has been slightly decreasing, for example, over a hundred years, then the computer will likely tell you that fifty years from now the temperature will be lower, get it?"

"Yes."

"OK. Lana and Tom's program is much, much, more complicated than that. They've entered thousands of sets of systems data related to the Earth's environment into their very sophisticated computer. It's taken them years to do this. Global temperature, population changes, soil erosion, atmospheric carbon dioxide, sea temperatures, water consumption, data like that. They've run the program over and over, trying all sorts of variations. Funny thing is, the computer always comes up with the same conclusion."

"Which is?" I asked, ladling gravy over my potatoes.

"The computer tells them that if things continue the way they're going, even if we fix a few of the problems, there will still be an inevitable collapse of the planet's ecosystems with regard to the human race."

"What do you mean, *collapse*?"

"I mean," Cynthia continued, chewing on a piece of chicken, "that, as far as the human race is concerned, the planet will no longer be able to support us. We'll have created too much pollution, squandered too much topsoil, contaminated too much atmosphere, depleted too much ozone, and used up too much drinkable water to be able to support what will be too many people. They call it 'Global Collapse,' which sounds both awful and appropriate to me. It's also called *Ecocide*, because it means that we'll have destroyed the Earth's ecology, as far as the human race is concerned."

"Ecocide? And in what century will this take place?"

"Global Collapse is the bad news, but it gets worse. According to the models, it'll take place within about forty years. 2040. All of the computer graphs show increases in things like population, pollution, and waste occurring today, with no let up in sight. The lines on the graphs go

up and up. Until about 2040. Then they all take a plunge. Everything drops dramatically — food, resources, quality of life, industrial output, population. That’s why they call it global *collapse*.”

“Forty years ago I was in second grade!” Annie exclaimed. “You’re telling me that kids in grade school today are going to see the collapse of life as we know it? My daughter Penny May has this to look forward to? That’s hard to believe.” Penny was poking at her slice of chicken with her fork as if it were still alive. She had a scowl on her face.

“Yes, it seems unbelievable,” Cynthia continued. “There’s one big problem with being a skeptic, however. The rate of change in the environment is increasing *exponentially*. That means it gets faster with each passing year. And it’s hard for most people to grasp the concept of exponential growth.”

“I guess I’m one of those people,” I admitted.

Cynthia looked at me warily out of the corner of her eye as if she couldn’t believe I didn’t know what exponential growth was. “Did you ever hear the story about the wise man who agreed to work for a grain of wheat?”

“No.”

“Well, then, I’ll just tell it to you. It illustrates how exponential growth works.” Cynthia took a long drink of white wine, settled back in her chair and began, “It seems a wise man was forcibly taken before a King and told that he was henceforth to work for the kingdom. The King agreed to pay a fair wage for the man’s time, however, and offered him a standard monthly payment. The man replied that he was honored to work for such a fair and just King, but he would only accept one grain of wheat for his first day’s work. A single *grain*.” She took another sip of wine and dabbed her mouth with her napkin. “The King burst into laughter at this apparent act of charity,” Cynthia continued, “and insisted that the man agree to a standard rate of pay. The man refused, but suggested that the number of wheat grains should be *doubled* each day. At the end of thir-

ty days, he told the King, he would no longer accept *any* payment at all. The King laughed again at the man, thinking him a fool, but agreed to the pay scale. One grain of wheat the first day, two the second, four the third day, eight the fourth, 16 the fifth, 32 grains the sixth day, and so on. Now tell me Joe, at this rate of pay, how much wheat would you expect the man to have acquired at the end of thirty days?"

"Probably a large bag or two," I guessed.

"Nope. That's what most people think. Exponential rates of increase don't work like that. In thirty days, the wise man would be due a half *billion* grains of wheat. More than all the wheat in the kingdom. Enough to bankrupt the king. You see, exponential growth rises slowly at first, almost imperceptibly, then it increases more and more rapidly until it's totally out of control. That's what's happening to the environmental problems facing our planet. Problems like population growth, resource consumption, waste production. They increase at exponential rates. It seems unlikely that one man can obtain all of the wheat in a kingdom in 30 days by starting with one grain and doubling it each day. And it seems equally unlikely that ecocide can occur in forty years. But only a fool, like the arrogant King, would risk ignoring the math. And that's what Tom and Lana's computer is doing. The math. My friends are like lemmings that can climb trees."

"What the hell are lemmings?" I asked, setting my fork on my plate.

"Lemmings. You know — little rodent-like creatures. They're known for the peculiar behavior of banding together in great hordes and running off the edge of cliffs. Mass suicide."

"Weird."

"Yeah. Imagine a hoard of lemmings racing toward a cliff overlooking the sea. As the great rodent herd gets closer to the edge, one or two lemmings break off from the rest of the group and climb up the trunk of a tree, maybe by accident. In any case, the tree-climbing lemmings now

have the extraordinary ability to look ahead, and, to their horror, realize that their hundreds of thousands of lemming friends are all rushing off to a sudden, needless, and gruesome death over the edge of a cliff. The lemmings with the newly acquired foresight also then realize that a simple change of direction would prevent a catastrophe. And so they begin squeaking to the scrambling masses underneath them to change course. No one hears them. Tom and Lana are like that. Their computer enables them to foresee things to come, but no one will listen.”

“Why, for heaven’s sake, aren’t your friends getting this information out to the media?” asked Annie.

“They’ve tried. But the media, which is controlled by big business, says it’s inflammatory, frivolous, and not newsworthy. And Tom and Lana can’t publish it independently either without risking their jobs at the university. The industries that help fund the university are putting pressure on the university to keep the information quiet.”

“Can we talk to these folks? Your friends?” Annie asked.

“I don’t see why not. I’ll get you their phone numbers. I’m sure they’d love to talk with you.”

By this time we had all finished eating. Penny’s plate was completely empty except for her piece of chicken, which was untouched. As Cynthia’s daughters were clearing the table, I called the scientist friends, told them of our interest, and made arrangements to meet with them. It sounded like they were on the same track as Lucy had been, and we needed to find out what else they knew.

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