

HEAL THYSELF

by Orson Scott Card

There's a limit to how much you can shield your children from the harsh realities of life. But you can't blame parents who try. Especially when it's something you have to go out of your way to discuss. My parents assure me that they would have talked about it someday, but it's not like the birds and the bees-there's not a certain age when you have to know. They were letting it slide. I was a curious kid. I had already asked questions that could have led there. They dodged. They waffled. I understand.

But then my childhood friend, Elizio, died of complications from his leukemia vaccination. I had been given mine on the same day, right after him, after jostling in line for twenty-minutes with the rest of our class of ten-year-olds. Nobody else got sick. We didn't know anything was wrong with Elizio, either, not for months. And then the radiation and the chemotherapy; primitive holdovers from an era when medicine was almost indistinguishable from the tortures of the Inquisition. Nothing worked. Elizio died. He was eleven by then. A slow passage into the grave. And I demanded to know why.

They started to talk about God, but I told them I knew about heaven and I

wasn't worried about Elizio's soul. I wanted to know why there wasn't some better way to prevent diseases than infecting us with semi-killed pseudoviruses mixed with antigen stimulants. Was this the best the human race could do? Didn't God give us brains so we could solve these things? Oh, I was full of righteous wrath.

That was when they told me that it was time for me to take a trip to the North American Wild Animal Park. What did that have to do with my question? It will all become clear, they said. But I should see with my own eyes. Thus they turned from telling me nothing to telling me everything. Were they wise? I know this much: I was angry at the universe, a deep anger that was born of fear. My dear friend Elizio had been taken from me because our medicine was so primitive. Therefore anyone could die. My parents. My little sisters. My own children someday. Nothing was secure. And it pissed me off. The way I felt, the way I was acting, I think they believed that nothing but a complete answer, a visual experience, could restore my sense that this was, if not a perfect world, then at least the best one possible.

We left Saltillo that weekend, taking the high-speed train that connected Monterrey to Los Angeles. We got off in El Paso, the southern gateway to the park. During the half-hour trip, I tried to make sense of the brochures about the park, all the pictures, the guidebooks. But it was dear to me, even at the age of eleven, that something was being left out. That I was getting the child's version of what the park contained. All that the brochures described was a vast tract of savannas, filled with wild animals living in their natural habitat, though it was an odd mixture of African,

South American, European, and American fauna that they pictured. Of course, to protect the animals against the dangers of straying and the far greater menace of poaching, the park was fenced about with an impenetrable barrier-not illustrated in the brochures-of fences, ditches, wires, walls. The thing that made no sense at all, however, was the warning about absolute biosecurity. All observations of the park inside the boundaries were to take place from within completely biosealed buses, and anyone who tried to circumvent the bioseal would be ejected from the park and prosecuted. They did not say what would happen to anyone who succeeded in getting out into the open air.

Biosealed buses suggested a serious biohazard. And yet there was nothing in the brochures to indicate what that biohazard might be. It's not as if herds of bison could sneak onto the buses if you cracked the seal.

The answer to this mystery was no doubt the answer to my question about why Elizio died, and I impatiently demanded that my parents explain.

They urged me to be patient, and then took me right past the regular buses and on to a nondescript door with the words --in small letters-- "Special Tours."

"What's so special?" I asked.

They ignored me. The clerk seemed to know without explanation exactly what my parents wanted. Then I understood that my parents must have called ahead.

It was a private tour. And not on a bus. We were taken down an elevator into a deep basement, and then put aboard a train on which we rode for more than an hour-longer than the trip from Saltillo to El Paso , though I suspect we were going much slower. Underground, who can tell?

We came up another elevator, and, like the underground train, this one had no trappings of tourism. This was a place where people worked; gawking was only a secondary concern.

We were led by a slightly impatient-looking woman to a smallish room with windows on four sides and dozens of sets of binoculars in a couple of boxes. There were also chairs, some stacked, some scattered about almost randomly. As if someone hadn't bothered to straighten up after a meeting.

"Are they close?" asked Mother.

"We're here because the water is nearby," said the woman. "If they aren't close now, they will be soon."

"Where's the water?" asked Father.

The woman pointed vaguely in a direction. It's clear she didn't want us there. But Mother and Father had the gift of patience. They were here for me, and bore the disdain of the scientist. If that's what she was.

The woman went away.

My parents picked up binoculars and searched. I also picked out a set and tried to figure out how to focus it.

"It senses your vision automatically," Father explained. "Just look, and it will come into focus."

"Bacana," I said. I looked.

There was a lot of dry grassy land, interspersed with drier, sagebrushy land. In one direction were some trees. That must be where the water was.

"Spotted them yet?" Mother asked.

"To the left of the trees?" asked Father.

"There too?"

"Where did you see them?"

"In the shade of that rock"

I searched and finally found what they were looking at.

Men and women. Long-haired. Filthy. Naked.

My straitlaced parents brought me here to see naked people?

Then I looked again, more closely. They weren't exactly people after all.

"Neanderthals," I said.

"Homo neanderthalensis," said Father.

"They've been extinct forever!"

"For about twenty thousand years, most conservative guess," said Father.

"Maybe longer."

"But there they are," I said.

"There was a long debate," said Father. "About how the Neanderthals died out."

"I thought that Homo sapiens wiped them out."

"It wasn't so simple. There was plain evidence of communities of sapiens and neanderthalensis living in close proximity for centuries. It wasn't just a case of 'kill-the-monsters.' So there were several theories. One was that the two species interbred, but Neanderthal traits were discouraged to such a degree that they faded out. Like round eyes in China ."

"How could they interbreed?" I asked. I was proud of my scientific erudition, as only eleven-year-olds can be. "Look at how different they are from humans."

"Not so different," said Mother. "They had rudimentary language. Not the complicated grammar we have now basically just imperative verbs and labeling nouns. But they could call out to each other across a large expanse and give warning. They could greet each other by name."

"I was talking about how they look."

"But I was talking about brain function," said Mother, "which is much more to the point, don't you think?"

"Another theory" said Father, "was that Homo sapiens evolved from the Neanderthals. That one was discredited and then revived several times. It turns out that was the closest theory to being right."

"You know, none of this explains why there are Neanderthals out here in the North American Wild Animal Park."

"You surprise me, Son," said my father. "I thought you would have leaped to at least some conclusion. Instead you seem to be passively awaiting our explanation."

I hated it when Father patronized me. He knew that, so he did it whenever

he wanted to goad me into thinking. It always worked. I hated that, too.

"You brought me here because of the way I reacted to Elizio's death," I said.

"And because you're famous scientists yourselves, you got to pull strings and get me a special tour. Not everybody sees this, right?"

"Actually, anybody can, but few want to," said Father.

"And the biohazard stuff-that suggests some kind of disease agent. What you said about the evolved-from-Neanderthals scenario being close to correct suggests ... there's some disease loose in the wild here that causes regular people to turn into cavemen?"

Father smiled wanly at Mother. "Smart boy," he said.

I looked at Mother. She was crying.

"Just tell me," I demanded. "No more guessing games."

Father sighed, put his arm around Mother, and began to talk. It didn't take long to explain.

"The greatest breakthrough in the medical treatment of disease was the germ theory, but it took an astonishingly long time for doctors to realize that almost all human ailments were caused by infectious agents. A few were genetic-such as cystic fibrosis and sickle-cell anemia but those all seemed

to be recessive genes that conferred a benefit when you had one of them, and killed you only if you had two. All the others--heart disease, dementia, schizophrenia, strokes, nontraumatic cerebral palsy, multiple sclerosis, most cancers, even some crimes--all were actually diseases. What disguised them from researchers for so long was the fact that these diseases were passed along in the womb, across the placenta, mostly by disease agents composed of proteins smaller than DNA. Some were passed along in the ovum. So we had no way to compare a clean, healthy organism with an infected one until we finished mapping the human genetic code and realized that these diseases weren't there. When we finally tracked them down as loose proteins in the cells, we--"

"We?" I asked.

"I speak of our forebears, of course," said Father. "Our predecessors."

"You aren't in medical research."

"Our colleagues in science," said Father. "We've come a long way to have you quibble about my choice of pronouns. And anthropology is the science of which medicine is merely a subset."

I had a snappy retort about how nobody ever asks if there's an anthropologist in the house, but I kept it to myself, mostly because I didn't want to win points here, I wanted to hear the story.

"How do you inoculate an organism against in utero infection?" asked Mother rhetorically. "How do you cleanse an ovum that has already been infected?"

"What we developed," Father began, then interrupted himself. "What was developed."

"What emerged from the development process," said Mother helpfully.

"Was," said Father, "an elegant little counterinfection. Learning from the way these protein bits worked, the researchers came up with a protein complex that hijacked the cell's DNA just the way these infectious agents did. Only, instead of destroying the host cell, our little counterinfection caused the human DNA to check aggressively inside the cell for proteins that didn't belong there. There are already mechanisms that do bits and parts of that, but this one worked damn near perfectly. Nothing was in that cell that didn't belong there. It even detected and threw out the wrong-handed proteins that caused spongiform encephalopathies."

"Now you're showing off, my love," said Mother.

"It was perfect," said Father. "And best of all, self-replicating yet nondestructive. Once you introduced it into a mother, it was in every egg in her body after a matter of days. Any child she bore would have this protection within it."

"It was perfect," said Mother. "The early tests showed that it not only prevented diseases, it cured all but the most advanced cases. It was the ultimate panacea."

"But they hadn't tested it for very long," said Father.

"There was enormous pressure," said Mother. "Not from outside, from inside the research community. When you have a cure for everything, how can you withhold it from the human race for ten years of longitudinal studies, while people die or have their lives wrecked by diseases that could be prevented with a simple inoculation?"

"It had side effects," I said, guessing the end.

"Technically, no," said Father. "It did exactly what it was supposed to do. It eradicated diseases with smaller-than-bacteria agents. Period. Nothing else. The only reason that they didn't immediately spread the counterinfection throughout the world to save as many lives as possible was because of the one foreseeable hitch. Can you think of it? It's obvious, really."

I thought. I wish I could say I came up with it quickly, but my parents were nothing if not patient. And I did come up with it after a few false tries, which I can't remember now. The correct answer: "Aging is a disease. You get this counterinfection, you don't die."

"We were concerned about a population explosion," said Mother. "Even if people completely stopped having children, we weren't sure that the existing ecosphere could sustain a population in which all the existing children grew up to be adults while none of the adults died off to make room for them. Imagine all the children entering the workforce, while the older generation, newly vigorous and extremely unlikely to die, refused to retire. It was a nightmare. So, by the mercy of God, the counterinfection was restricted to a large longitudinal study centered on Manhattan, a smallish college town in Kansas."

"There was a quarantine of sorts," said Father. "The participants accepted the rules-no physical contact with anyone outside the city during the two years of the study. In exchange, nobody dies of any kind of disease. They jumped at it."

"The counterinfection got loose!" I said.

"No. Everybody kept to the rules. This was science, not the movies," said Father. "But in the Manhattan Project, as we inevitably called it, for the first time the test included infants, newborns, children born after the study began, children conceived after the study began. We were so interested in the result with the aging population that it had never crossed our minds that ... well, it did cure aging. The people who have it would never die of old age. The trouble was, the children were born--"

"As Neanderthals," I said, making the obvious guess.

"And over time," said Father, "as cells were replaced, the adult bodies also tried to reshape themselves. It was fatal for them. You can't take an existing body and make it into something else like that. You had a few years of perfect health, and then your bones destroyed themselves in the frantic effort to grow into new shapes. The little ones, the ones who were changed in the womb, only they survived."

"And that's who I'm seeing out there," I said.

Father nodded. "It took fifteen years to find a way to sterilize them all without our counterinfection undoing the sterilization. By then there were so many, of them that to keep them all in their natural habitat required a vast reserve. It really wasn't all that hard to get the citizens of this area to evacuate. Nobody wanted to be anywhere near Manhattan, Kansas. So once again, Homo neanderthalensis has a plot of ground here on Earth. Homo neanderthalensis, the most intelligent toolmaking species ever to evolve naturally."

"But how could the counteragent cause us to revert to an earlier stage of evolution?" I asked.

"You weren't listening," said Father.

I thought for a moment. "Homo neanderthalensis isn't an earlier stage," I

said. "There was no more evolution after that."

"Only a disease," said Father.

It seemed too incredible to me, as an eleven-year-old who prided himself on understanding the world. "Human intelligence is an infection?"

"Passed from mother to child through the ovum," said Mother. "By a disease agent that alters the DNA in order to replicate itself. We should have realized it from the fact that in utero development recapitulates evolution, but there is no stage in which the fetus passes through a habiline form. We did not evolve past it. The DNA is hijacked and we are born prematurely, grossly deformed by the disease. Neotenic, erectstanding, language-mad, lacking in sense of smell, too feeble to survive on our own even as adults, in need of clothing and shelter and community to a degree that the Neanderthals never were. But ... smart."

"So now," said Father, "do you understand why medical science has to rely on inoculation to fight off cancer, so that a small percentage-far smaller than ever before in human history, but not zero-a small percentage dies? Elizio died because the only alternative we've found is for this race of perfectly healthy, immortal, dim-wilted beings to inherit the Earth."

I stood there for a long time in silence, watching the Neanderthals, trying to see how their behavior was different from ours. In the years since then, I have come to realize that there was no important difference. Being smarter

hasn't made us act any differently from the Neanderthals. We make better tools. We have a longer, more thorough collective memory in the form of libraries. We can talk much more fluently about the things we do. But we still do basically the same things. We are Neanderthals, at heart.

But I did not understand this at the time. I was, after all, only eleven.

I had a much more practical -- and heartless -- question.

"Why do we keep this park at all?" I asked. "I mean, they're going to live forever. And all the time they're alive, they pose a danger of this counterinfection getting loose outside the fence. Why haven't they all been killed and their bodies nuked or something so that the counteragent is eliminated?"

Mother looked appalled at my ruthlessness, but Father only patted her arm and said, "Of course he thought of that, my love."

"But so young, to be so--"

"Practical?" prompted Father. "There was a long debate over exactly this issue, and it resurfaced from time to time, though not for decades now: The ones who argued for keeping the park talked about the necessity of studying our ancestors, and some people talked about the rights of these citizens who, after all, can't help their medical condition and have committed no crime, but it was all a smoke screen. The real reason we didn't destroy

them all, as you suggested, was because we didn't have the heart."

"They were our children," said Mother, crying again.

"At first," said Father. "And later, when they weren't children anymore, we still couldn't kill them. Because they had become our ancient parents."

Now, though, I have come to think that while they were both right, the answer is even deeper. We didn't kill them, and we continue not to kill them, despite the reality of all those dangers, because they are not "they" at all. There, but for the fact that we happen to be the tiniest bit ill, go we.

I had troubling dreams for months afterward. I had mood swings, alternating between aggression and despair. At times, my parents wished they had just answered my questions about Elizio by taking me to the priest and getting me on the roster of altar boys.

But they were not wrong to take me there, any more than they had been wrong not to tell me up till then. I needed to know before my education was complete. Those who do not know, who continue through adulthood oblivious, in a sense remain children, forever naive. Within the fence of the North American Wild Animal Park is the Garden of Eden, and the people there eat freely of the Tree of Life. Here, outside, in this world of thorns, we dwell in the Valley of the Shadow of Death, madly eating of the fruit of the Tree of Knowledge, as much of it as we can get before we die.

You cannot straddle the boundary. If you bring children into the world on this side of the fence, you must take them to eat the fruit of the tree not too young, not before they're able to bear it. But don't wait too long, either. Let them see, before you die, that death is truly the gift of a merciful God.

* * * * *