SEVEN

THE RULES OF LIFE

THERE ARE REALLY two environments, two worlds, on Mount Hood. One is tailored for the comfort and survival of people. The other is not. There are the ski lifts, the lodge, and the five-star restaurant with its pinot noir and rosemary crostini. I'd seen it the night before at dinner. Timberline is a place where the chili is white and costs $6.75, the dessert is flourless, and the tea is Tazo. With my silverware clinking softly, I could possess those millions of square miles of wilderness with an unwary indifference that no other animal would dare. The mountain was safely contained within mullioned window frames. At a nearby table, two scientists, one from Los Alamos, the other from Livermore, discussed the tax laws of their respective institutions while sipping an amusing little fumé blanc. And there were the happy children on their snowboards, riding the steel ski lifts, which lay like the bars of a cage to contain the beast.

But I can rule only my neat little model of that world. I saw how easy it was to cross that invisible dividing line between what has been adapted for us and what demands that we adapt to it. By the imperceptible increments of my footsteps, I changed the frame. The pretty lodge was reduced to a doll's house, while the

wilderness, huge and voracious, exploded across my view. The rules changed, too.

I understood, then, how Bill Ward, Rick Read, and John Biggs, the three men who died, might have carried some of that attitude from the lodge to the mountain. Their success in life, their goals and plans and imagination, had brought them here. They'd made the money to do such things. They deserved the rewards that their mastery of life had brought them. Biggs was bent on climbing the highest peak in every state. So perhaps not even their combined experience could shake the view that Mount Hood was one more challenge to be met and managed.

Mount Hood would not be managed. I'd seen John Biggs's brother in the parking lot the day after the accident, searching John's truck for the ignition key so that he might take a few personal effects home to the family. He'd just come from identifying John's body—John, who'd survived flying a fighter plane in Vietnam and a career as an airline pilot, only to be killed by a "beginner's mountain."

The people were part of the mechanical system, but they were also a system in themselves. And without knowing any scientific theory, there was less esoteric knowledge that might have helped them that day.

All of the rescue professionals I spoke to at Mount Hood seemed to understand the fundamental mistake the climbers had made. Jim Tripp is head of the ski patrol for Mount Hood, and one day he invited me to his office to talk. I found it in the ski patrol room, an institutional-looking place with six bunks under orange, blue, yellow, and green bedcovers. There were stuffed animals on a high shelf and ski company stickers plastered all over the steel cabinets. (On the toe of one set of skis: "Danger! Air Bag Installed.") There were dispensers of Orthoglass synthetic splints, along with oxygen and IVs, cervical collars and backboards. This place was all about pain.

The only illumination in Tripp's cluttered office came from a

single desk lamp. Tripp is tall and lanky, and in this place of perpetual snow, he wore bluejean shorts, sandals, and a gray sweatshirt. Feet up on the metal desk, cocked back in his secretary's chair, hands folded behind his nearly bald head, he wore a big grin as I came in. He looked like an aging surfer and knew as much about Mount Hood as anyone. When I asked him about self-arrest with an ice ax, he just laughed. "If there's only ten feet of slack, it can pull you off," he said. "If you are a true master, then maybe, *maybe*, you can self-arrest. The first rule is: The top man must not fall. He's going to go one hundred feet before the rope is taut, and you are screwed. This mountain is just not taken seriously. Fat people go up there."

Experience can help us or betray us. Bill Ward had had three to five years of climbing experience and it led him to pull his protection, which led to his death.

Peter M. Leschak is a wildland firefighter and a gifted writer. In *Ghosts of the Fireground*, he writes of waiting too long to get out of a fire that was overtaking him. "I'd perhaps been too well trained," he says. "I was a victim of a common fire service mindset: Can do! . . . A crew is ever anxious for the action and the novelty. . . . Our instructor had drummed a phrase into our heads: When in doubt, don't."

He's talking about a theory called "risk homeostasis." The theory says that people accept a given level of risk. While it's different for each person, you tend to keep the risk you're willing to take at about the same level. If you perceive conditions as less risky, you'll take more risk. If conditions seem more risky, you'll take less risk. The theory has been demonstrated again and again. When antilock brakes were introduced, authorities expected the accident rate to go down, but it went up. People perceived that driving was safer with antilock brakes, so they drove more aggressively. With the introduction of radar in commercial shipping, it was expected that ships would collide less frequently. The opposite proved to be true. Radar simply allowed the owners to require the captains to

drive the ships harder. Technological advances intended to improve safety may have the opposite effect.

Leschak said of his near-death experience, "We were normalizing risk: We'd been through a similar situation and had emerged just fine. . . . If you've tallied a lot of experience in dangerous, iffy environments without significant calamity, the mental path of least resistance is to assume it was your skill and savvy that told the tale." That same trap kills a lot of experienced climbers, skiers, hikers, boaters, cavers, and so on. Heraclitus said that every time you step into the river, it's a different river. Every time you walk on Mount Hood, it's a different mountain. To use the technical terms, it's a boundary condition, a phase transition zone. And because of that, even if you are intimately familiar with its subtleties of character, it can make a mockery of the most thoughtful plans. Experience is nothing more than the engine that drives adaptation, so it's always important to ask: Adaptation to what? You need to know if your particular experience has produced the sort of adaptation that will contribute to survival in the particular environment you choose. And when the environment changes, you have to be aware that your own experience might be inappropriate.

Climbers might read *Accidents in North American Mountaineering* (*ANAM*), an annual summary edited by Jed Williamson. In his analysis of an accident that was almost identical to the one on Mount Hood, Williamson wrote that the three common factors in most mountaineering accidents are "(1) descending, (2) roped together, and (3) no fixed protection. A rope without fixed anchors invariably becomes the primary mechanism of multiple injuries during a fall."

Headlines in the *The Oregonian*, Portland's daily newspaper, would scream that it was just a "freak accident." It was not. It's a very common one, repeated over and over on numerous mountains. The most experienced mountaineer on Hood put it this way: "A rope without fixed protection is a suicide pact."

. . .

THE PERSON is always a part of the system. Charles Perrow calls them "human-machine systems." In river running, you don't feel like being stationary. Once you're moving, it takes a lot of self-control to stop and scout or decide to portage, to disengage the human from the system when it may grow too chaotic. The same was true for the Canadian snowmobilers who were caught in an avalanche. Staying put was safe, but it didn't cut it emotionally. The same can be true of climbers descending.

There are three main difficulties with descent: attitude; an emotion involving goal seeking; and stress. In the first case, those climbers, like most, celebrated reaching the summit. "It was such a glorious morning," Slutter recalled. "We were enjoying the moment. We were joking around up there for half an hour." Laughter again: humor. The deescalating emotional response.

The trap lay in the fact that they were only halfway to their real goal. They were celebrating when they had the worst part of the climb ahead of them. Climbers are the only sportsmen who do that. Moreover, it is part of the natural cycle of human emotion to let down your guard once you feel you've reached a goal. When they took the Sno-Cat to the top of the Palmer ski lift, they were geared up for action, excited, and perhaps a bit anxious. The familiar adrenal response took shape to promote action. It powers the rising curve of energy until the goal is met (the hunt, the mating, the fight or flight). It was followed by a grueling climb of five hours. By the time they reached the summit, the chemicals of emotion had been metabolized, even as the body burned its reserves of glucose. They felt that the action was over. They didn't think it, they felt it. Laughter and celebration lowered their guard further. Energy took a downward curve toward rest and recuperation, just as it would following any other burst of activity. Their focus had been sharp in the goal-seeking phase. Now it grew blurry.

Various stresses contribute to falls on descent. Most climbers reach the summit tired, dehydrated, hypoxic, hypoglycemic, and sometimes hypothermic. Any one of those factors would be enough to erode mental and physical abilities. Put together, they make you clumsy, inattentive, and accident-prone. They impair judgment. They could, for example, contribute to a decision to descend without fixed protection. Tired muscles are less precise in their movement, making a slip more likely.

Stress can trump all the other effects. (The correct term is actually "strain," but "stress," mistakenly used by Hans Selye, a Canadian researcher, in the 1930s, has stuck as the accepted usage.) The stresses involved in wilderness recreation activities are more than enough to set about organizing an accident.

Last, there is the fact that descending is technically more difficult than ascending. During the climb up, your foot is planted before your body weight is shifted. The opposite is true on descent, and it's less stable. Descent, like the act of walking, is a controlled fall.

Even with unimpaired thinking, there's no guarantee that things would have gone any better. People routinely fail to realize that an accident not happening is no guarantee that it won't happen. As Scott Sagan puts it in *The Limits of Safety*, "things that have never happened before happen all the time." Unfortunately, as Perrow comments, "It is normal for us to die, but we only do it once." Which is too bad, for it might be the ultimate learning experience.

SO THE CLIMBERS faced downhill now with the Timberline Lodge in view. Suddenly, the high of celebrating the summit turned into the prospect of a long slog down to the lodge. *(The pinot noir, the rosemary crostini.)* Images of previous experiences blossomed across numerous areas of the brain. The climbers saw rest and safety close at hand: Just get down the spine to the lodge as quickly as possible.

Belaying is tedious, time-consuming, tiring. They were already tired, had already consumed enough time. Spinning rapidly and unconsciously through the options, they hit those emotional bookmarks, and one of those bookmarks may have reminded the climbers that the act of placing one foot in front of the other would soon yield comfort, safety, relief. Another bookmark told them that belaying involved prolonged pain, thirst, hunger, and fatigue.

The organism would not have been likely to vote for that. The climbers had no bookmark for falling down a 1,000-foot ridge, nor for the speed with which energy can build up in a system of ropes. Their successful practice at self-arrest would have worked against them, giving them an emotional certainty that it worked: They'd felt it work. The body knows. But they had felt the system only at low energy levels, where its behavior was predictable, not chaotic. None of them had ever tried to arrest something that weighed as much as a dump truck. None had tried arresting with a broken pelvis or a dislocated shoulder.

Unconsciously, they were asking themselves: How have I done this before? I roped up and walked and used my ice ax as a cane, and we got down all right. *(A hot shower.)* Okay, listen up: Just keep the slack out of the system . . .

Once the decision was made, the system accepted, those elements helped to form a new mental model. A basic assumption of the system was that someone could fall. So the idea that the system would hold a fall was embedded in the model. It was a given, an unconscious way of viewing the world. Then everyone got busy making sure that all the various parts of the system were connected and working properly. Tasks such as tying knots and checking harnesses would have occupied their attention, and that familiar and reassuring ritual would have substituted for a thorough analysis of the entire system or the model.

Slutter recalled: "We had just discussed with the group about keeping two points on the slope. We had reviewed all this the day before. Have contact with two crampons or a crampon and an ice

ax at all times." Paradoxically, the very discussion that was intended to reduce risk encouraged faith in a faulty system.

So, piece by piece, unaware that their model of the world was no longer valid, they assembled the accident. And they began that process long before their arrival on Mount Hood. For even the accumulation of experience on other mountains betrayed them. As Slutter put it, "I have had to arrest myself more than once on many climbs and I know that you are going to move five to eight feet and then you are fine."

So they would have been getting the feel of taking precautions—ones with which they were familiar but which applied only at low energy levels. The model on which they operated, unlike the system itself, was stable: new information, such as the precarious condition of the ice, couldn't disturb it.

Slutter later recognized that fact. "I truly believe that the quality of the ice played a factor in us not being able to arrest," he told me after the accident. But he did not appreciate the forces he'd encountered. "I was in arrest position before there was any yank on my rope, and I was thinking: Don't worry, you're going to move five to eight feet. Then my ax went through the ice like it was a slush puppy. I went down the mountain on my chest. My chest was black from bruising. When I came to, I still had an ice ax in my hand."

Al Siebert, a psychologist, writes in *The Survivor Personality* that the survivor (a category including people who avoid accidents) "does not impose pre-existing patterns on new information, but rather allows new information to reshape [his mental models]. The person who has the best chance of handling a situation well is usually the one with the best . . . mental pictures or images of what is occurring outside of the body."

Everyone, to one degree or another, sees not the real world but the ever-changing state of the self in an ever-changing invention of the world. We live in a continuous reinterpretation of sensory input and memories, and they are contained in presets that can, at any given moment, light up neural networks in a shifting kaleido-

scope of energy, which we come to think of as reality. It is all part of the dynamic dance of adaptation that accounts for our survival as an organism and the survival of the species.

IN JUNE 1992, the National Outdoor Leadership School (NOLS)—along with other like-minded organizations, including Outward Bound and the American Alpine Club—organized the annual Wilderness Risk Managers Conference, held at Conway, Washington, to talk about accidents of just the sort that happened on Mount Hood and to work out a methodology not only for understanding what has happened in individual cases but for preventing accidents in the future. They discovered that wilderness accidents follow a predictable pattern. Every accident investigator I've ever talked to has expressed frustration at seeing the same accidents recur again and again.

NOLS has attempted to codify common elements of accidents in a matrix called "Potential Causes of Accidents in Outdoor Pursuits." Dan Meyer, director of the North Carolina chapter of Outward Bound, first published the Accident Matrix in 1979 in the *Journal of Experiential Education*. Jed Williamson refined it. Contributing causes of accidents are arranged in the Matrix under three general categories: Conditions, Acts, and Judgments, which combine in a dynamic and synergistic sequence to generate accidents.

It's easy to see how these categories would apply to the Mount Hood accident. "Conditions" refers to any potential forces that can hurt you, such as those resulting from a slip on a steep icy slope. The main "Act" that set the sequence in motion was to pull the protection and move while roped together. The "Judgment" was the belief that the climbers could self-arrest, which in the Matrix might be phrased as "overconfidence" or "exceeding their abilities." In other accidents, "Conditions" might be falling rocks, swift and/or cold water, or weather.

That may seem self-evident, too obvious to be useful. After all,

you don't need a matrix to tell you that if you're kayaking in a mountain stream, the water is going to be swift and cold. But such information can be a weak motivator. And as Peter Leschak, the firefighter, put it, "Sounds like a no-brainer, but in the heat of battle, simple concepts can wander off into the smoke and be forgotten." At the crucial moment for the climbers on Mount Hood, the information that belaying is safer could not overcome the urge to get off the mountain. Secondary emotions, emotional bookmarks, and mental models all conspired to encourage a sense of confidence about what the people were doing, even as stress worked to stifle any warning voice and mask cues about the changing environment.

A true survivor would be attuned to those subtle cues, the whisper of intuition, which might have been saying, *I don't feel quite safe here. Why is that so?* But since most of us are not conscious of those processes, we have nothing to draw our attention to what's happening to us. We don't have what psychologists call metaknowledge: the ability to assess the quality of our own knowledge. It's easy to assume that perception and reason faithfully render reality. But as Plato suggested and modern neuroscience has proved, we live in a sort of dreamworld, which only imperfectly matches reality. None of the mountaineers on Mount Hood said to himself or his companions: *Oh, my God! I'm being told to pull my protection by a mysterious force! Help! Help!* They literally never knew what hit them.

Some victims still don't know. One man who had decided to do some South American river rafting and got lost in the Bolivian jungle for three weeks during flood season wearing nothing but jeans, a T-shirt, and street shoes told me that, "apart from a personal machete, we were well equipped." After the Mount Hood disaster, which was widely reported, dozens of people were once again heading up (or down) the Hogsback in roped teams, one above the next, without protection. As you read this, the same acci-

dent has already happened again in more or less the same conditions on Mount Rainier. The helicopter crashed, too.

This isn't an argument for using belays or for not climbing. It's simply an argument for knowing. To rope up is a serious decision. I've had to make such decisions all my life in pursuits ranging from riding motorcycles across the Mexican desert to flying bush planes in the Arctic. But there is a subculture among mountaineers, and for most, the rope is more than a safety device. It's both a real and a symbolic commitment to a partner. Hillman, whose partner Biggs was killed, raised the rhetorical question: Given the chance, would he have considered cutting his rope? For him, the answer was clear. "No. There was no question what I had to do as a member of a team and as a friend."

Nevertheless, it's worth considering the next Matrix category, "Unsafe Acts." One item on Williamson's list is "Unauthorized/Improper Procedure." Again, that may seem obvious now, but if you wait until you're tired and hungry and thirsty, when all you can think of is a hot shower and a cold beer, then you may be tempted to just *get there now*.

Innumerable accident reports contain sentences such as "The pair decided to solo the first few 5.5 [i.e., easy] pitches to save time" ("solo" means they climbed without placing protection); or "The group was in a hurry to descend after spending longer on the ascent than they had expected." Or a classic: "He took a shortcut . . ."

Under the third column in the Matrix, "Judgment," numerous examples seek to explain the decisions that led to accidents: peer pressure, schedule, misperception, disregarding instincts . . . And they all fit, too.

There may have been peer pressure in the Mount Hood accident. If any one of the climbers had serious doubts, if anyone heard that small voice, no one said anything. In such situations, group dynamics can be a powerful motivator. It is well documented that co-pilots aren't likely to challenge pilots in aircraft

cockpits and sailors aren't likely to challenge captains, sometimes with fatal consequences. Experienced climbers may be reluctant to challenge others with experience, and the same is true in any other pursuit. Going into a risky operation, doctors won't challenge doctors. Going into a risky situation, cops won't challenge cops. So it's no surprise that none of the climbers wanted to be the one to say, "I can't handle this," and force everyone to belay and delay. You can just imagine back at the bar, all of them laughing, saying, "Yeah, Rick here made us belay all the way down the frickin' Hogsback. It took *forever*."

Even so, I tend to agree with Perrow: "I am arguing that constructing an expected world . . . challenges the easy explanations such as stupidity, inattention, risk taking, and inexperience." Perrow is proposing the frightening idea that we are doing the best we can with what we've got. We are not asleep at the switch. We are doing what everyone does, what the best among us do, and when we have such an accident, it's normal.

The design of the human condition makes it easy for us to conceal the obvious from ourselves, especially under strain and pressure. The Bhopal disaster in India, the space shuttle *Challenger* explosion, the Chernobyl nuclear meltdown, and countless airliner crashes, all happened in part while people were denying the clear warnings before them, trying to land the model instead of the plane. The Matrix is an effort to manage wilderness risks using some of the same analytical tools that have been used in industry for more than a hundred years.

Carl von Clausewitz introduced a related concept in *On War*, published posthumously in 1833. His text has been a classic guide for generals ever since and is still taught at military schools around the world. Clausewitz writes of "countless minor events" that "conspire to decrease efficiency, and one always falls short of the goal. These difficulties happen over and over again, and cause a sort of friction." He's talking about an army in the field, which is not altogether different from groups of people in the wilderness,

where the qualities Clausewitz identified as ideal in a general can come in handy.

Clausewitz observed, "The military machine . . . is basically very simple, which makes it seem easy to manage." Again, some simple systems are capable of complex behavior.

> But we must remember that no part of it consists of a single piece, that everything is made up of individuals, each of whom still has his own friction at every turn. . . . The battalion is always made up of a number of men, the least significant of whom may very well bring things to a halt or cause things to go awry. . . . Therefore, this terrible friction . . . is everywhere in contact with chance, with consequences that are impossible to calculate, for the very reason that they are largely elements of chance.

And most important for those undertaking such challenges as nature presents, the army general "must have knowledge of friction in order to overcome it, where possible, and in order not to expect a level of precision in his operation that simply cannot be achieved owing to this very friction."

When my eldest daughter, Elena, was about six years old, she and I decided that we were going to write a work we'd call *The Rules of Life.* The first rule we came up with was: *Be here now.* It's a good survival rule. It means to pay attention and keep an up-to-date mental model. The second rule was: *Everything takes eight times as long as it's supposed to.* That was the friction rule, which travelers in the wilderness will do well to heed.

There is a tendency to make a plan and then to worship the plan, that "memory of the possible future." But there is also a tendency to think that simply by putting forth more and more effort, we can overcome friction. In the case of the Mount Hood accident, both happened. With the large number of people on the mountain, it became like a battalion. Communication and movement

were difficult. Separate teams couldn't discuss and modify their plans as conditions changed. Each person had his own friction, each team had its own friction, and the cumulative effect put everyone on the same slope roped up at the same time with no protection and with the ice melting.

Rather than accept friction as a fact of life, they tried to overcome it. And as history shows, the harder we try, the more complex our plan for reducing friction, the worse things get.

Because the larger system that is made up of the vast population of people now involved in wilderness recreation is subject to normal accidents, the overall rate of accidents is likely to stay the same. But individuals can take steps to avoid them. To admit reality and work with it is to accept it. *Be here now.* And plan for everything to take eight times as long as you expect it to take. That allows for adaptation to real conditions and survival at the boundary of life and death, where we seek our thrills.

The seemingly simplest accident is complex, if only because it involves the human brain. The simplest physical systems may be capable of staggeringly complex behavior, too, as was the case on Mount Hood or in any river-running accident. The interactions of a river and the boaters on it challenge even the tools of higher math. When such nonlinear physical systems meet emotional systems, the results can be gruesome.

In the summer of 1997, Ken Phinney was paddling on the Chattooga River on the Georgia–South Carolina border. Although he wasn't the most experienced river runner, he was with more experienced people, who tried to help him. The accident report stated:

> Arriving at Crack in the Rock Rapid, the lead boater ran Right Crack and set up safety. Ken and his friend, despite strong warnings from the lead boater, beached their boats on river right and swam across the river so they could scout Left Crack. This drop is filled with undercut rocks and has killed several others in past years. Phinney didn't make it across, and washed into Left Crack

> feet first. He was pinned horribly under several feet of water. It took rescue squads several days to pull him out, but his body was torn apart in the process. . . . Left Crack is a well-known danger spot, and the victim was warned.

Simple forces power this complex environment. We cannot escape them, for they have formed us and everything in our world.

The climbers on Mount Hood were set up for disaster not by their inexperience but by their experience. It was the quality of their thinking, the idea that they knew, coupled with hidden characteristics of a system they had so often used. The system, like the sand pile, was capable of displaying one type of behavior for a long time and then suddenly changing its behavior completely. All it took was what Gleick calls "a kick from outside." That kick came from Bill Ward's slip, but it could have come from anywhere. The only certainty was that it would come, somewhere, sometime. But while such large-scale collapses are inevitable, the involvement of those particular climbers in the event was not. Any one of them could have disassembled the system at any point before Ward slipped simply by untying a knot or putting in protection. Such accidents have to happen. But they don't have to happen to you and me.