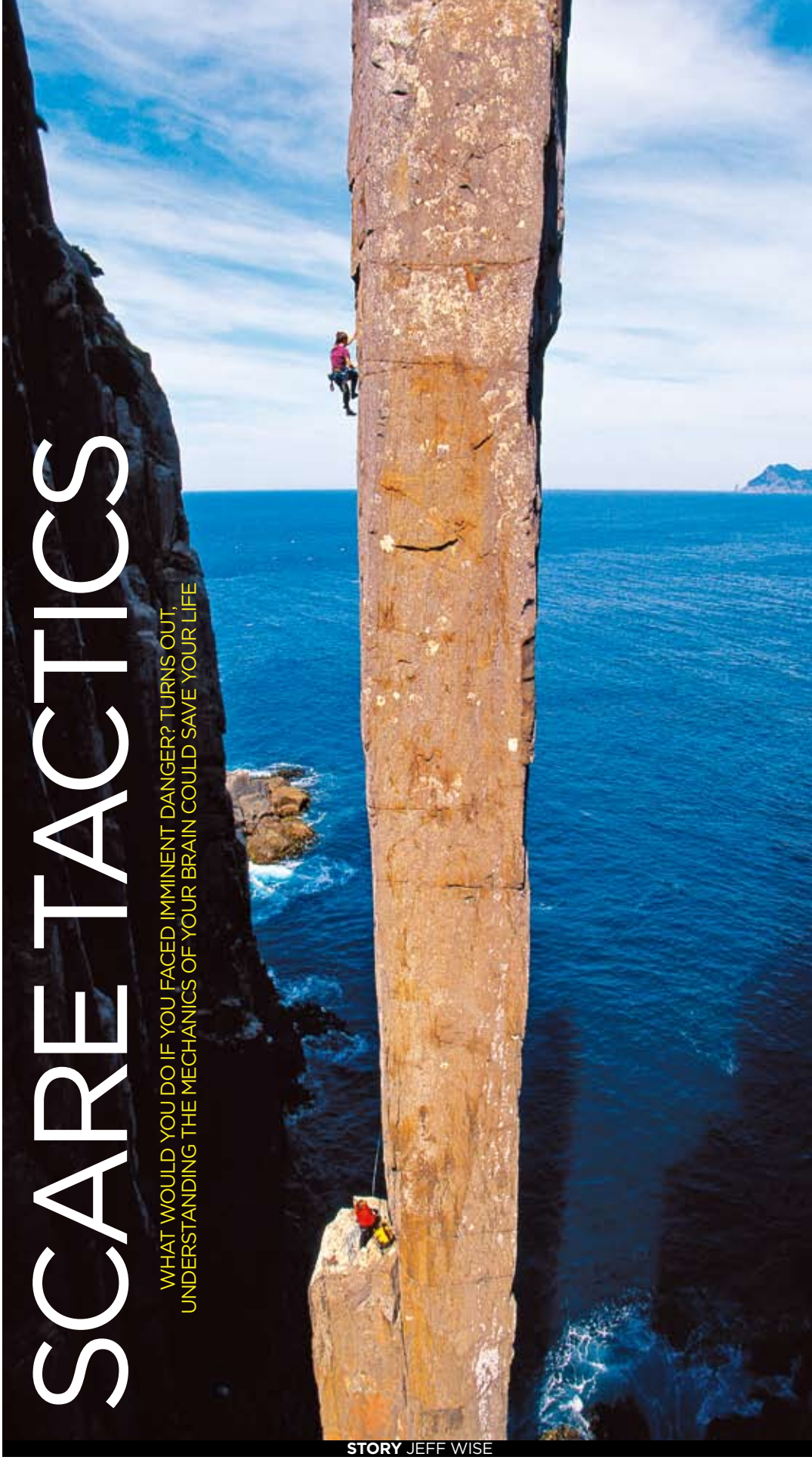
SCARE TACTICS

WHAT WOULD YOU DO IF YOU FACED IMMINENT DANGER? TURNS OUT, UNDERSTANDING THE MECHANICS OF YOUR BRAIN COULD SAVE YOUR LIFE



STORY JEFF WISE

Faced with a life-or-death situation and forced to make a sudden decision that would either save your life or end it, are you confident you'd make the right one? That wasn't a rhetorical question for residents in Victoria during February and March of last year. For five weeks, catastrophic bushfires swept across the state amid record-breaking temperatures and drought. Government policy held that when fire threatened a neighbourhood, homeowners were to make a choice: stay and fight to save their houses, or evacuate early. They were explicitly instructed not to wait until flames were close. Trying to run from an advancing wildfire is the surest way to die in it.

The choice made sense in rational terms. But in the wake of the devastation, a vociferous debate arose over the policy: Can people be expected to make rational decisions, critics asked, when they're surrounded by 1200-degree flames raging four storeys high? Most people have never encountered imminent lethal danger, and so can't possibly know how they'll react to extreme fear. Ensconced within society's protective cocoon, they've spent their lives free from such worry. But, as thousands of Australians found out the hard way, danger can overtake the unsuspecting with surprising speed.

Once mortal peril is at hand, the time for mental preparation is past. It's too late to ready one's mind for danger with habituating or training. But all is not lost. Although our ability to use reason and logic might be impaired, there are still simple strategies available to us that can help stave off panic.

The first step to dealing with a crisis is acceptance. It may sound obvious, but studies of disasters have found that many people remain in denial in the face of evident danger. Nightclub patrons continue to dance and order drinks as smoke fills the burning hall; passengers on a sinking ferry sit and smoke cigarettes as the vessel tilts ever more ominously to one side. This denial is driven by a mental phenomenon called 'normalcy bias'. Psychologists say that people who have never experienced a fatal catastrophe have difficulty recognising one could be unfolding.

Assuming you have avoided denial, the most terrifying part of a crisis is likely to occur at the beginning, when the full scope of the danger is unclear. Anticipatory fear is often worse than the experience. (Performers who throw up before a show, for example, never throw up onstage.)

Something similar is true of first-time skydivers, according to psychologist Seymour Epstein from the University of Massachusetts. He conducted a study in which novice jumpers were fitted with heart-rate monitors that measured their pulses as the plane climbed. Epstein found that the novices' heart rates became faster and faster until just before they jumped. Once they were out of the plane, their heart rates declined precipitously. **>**

The most stressful part of the jumpers' experience was the immediate anticipation. Compared to that, free-falling was a relief, as they finally understood what they were in for.

As a general principle, uncertainty is stressful. Laboratory animals are less stressed by an electric shock when they're warned it's coming by a buzzer. For humans, uncertainty in the face of danger magnifies stress by forcing a person to think about all probable outcomes and weigh up the feasible strategies for dealing with them. It also allows worst-case scenario thinking, which can detract from useful problem-solving.

A key early step to combating fear is to find out as much information as possible about the threat. When we face a life-threatening situation for the first time, one of the biggest uncertainties is what will happen inside our own minds. The familiar pattern of automatic responses that we regard as essential to our nature is thrown out the window. It can help if a person has experienced mortal danger before, as they'll have a sense of what their mind will be like and whether they'll hold up under pressure. When Dave Boon's car was struck by a Category 4 avalanche on a highway near Denver in 2007, he benefited from having been in a very different life-threatening situation two years earlier; he'd been whitewater rafting when his boat was swept below an overhanging rock.

"It ripped off the oarlocks on both sides of my raft, flattened me out, took the skin off my left knee and scraped my helmet up pretty bad," he says. "I tried to do a manoeuvre to spin out, but it didn't work. I was being raked under this wall that was eventually going to put me underwater. I said to myself, 'This isn't good.'"

Boon didn't panic, and the force of the water eventually pulled him free. Similarly, as he found himself tumbling end-over-end in the avalanche, he knew he wouldn't panic then, either. He knew what his mental process would be and that was a powerfully reassuring piece of information.

Conversely, we can't do anything if we don't know what's going on. And if we can't do anything, we're helpless. Studies have shown that being out of control in a negative scenario leads to the release of the stress hormone cortisol. The more control a person has over a situation, the less anxiety it provokes. When engaged in useful activity, it's easier to stop thinking about an internal fear and focus on external things, such as improving the situation.

Some people are more likely to take an active approach in a crisis. Optimists, who foresee positive outcomes, and extroverts, who are socially outgoing, are typically more proactive. So are people who see themselves as capable of shaping the outcome of a situation, a quality psychologists call an 'internal locus of control'. A related concept is self-efficacy – an individual's belief they can accomplish a task. People with these traits tend to perceive and take advantage of opportunities to change their situation. Consequently, they cope better with stress. Instead of looking at a glass and thinking it's half full, they ask, "Where's the faucet?"

These are the people you want with you when things become hairy. In 1967, mountain climber Art Davidson and two buddies were trapped by a storm in an ice cave on Alaska's Mount McKinley. Days went by as they slowly succumbed to hypothermia and starvation. To keep themselves going, they made careful plans about the only thing they had control over: their meagre rations. When the food ran out, they fell into despair, before finding another problem to grapple with: how to locate a cache of fuel they'd remembered was hidden nearby. By stringing a series of hopes together, they survived six days, at which point the weather broke and they escaped down the mountain.

"IN A LIFE-THREATENING SITUATION, THE BIGGEST UNCERTAINTY IS WHAT WILL HAPPEN INSIDE OUR OWN MINDS"

Ultimately, an alligator or a skidding car can't make you scared – what makes you scared is your mind's interpretation of those things. Fear is a phenomenon that resides entirely within the brain. That's why the most powerful method of controlling it is reappraisal. "Change the interpretation [and] you change your underlying reaction to it," says psychologist Matthew Lieberman. "If you see someone in a [movie] who's all bloody and banged up, and you think, oh, it's just Hollywood special effects, it's not a real event, then it's no longer distressing."

Studies have found that people who think of events as challenging rather than threatening cope better with their emotions, have more positive feelings and are more confident.

Still, almost everyone is more prone to being overwhelmed by fear when alone. We're social animals, and people in danger instinctively seek out support – a phenomenon known as 'milling'. People cluster together to chat, share information and work to form a consensus about what's going on and what to do about it. Unfortunately, by then, it may well be too late.

In the spring of 1977, a show at the Beverly Hills Supper Club in Ohio drew a crowd of 1360. The performance was about to start when a busboy hurried onstage and told the crowd that a fire had broken out and they must evacuate immediately. Some understood at once and headed towards the exits; others milled, chatted and even ordered drinks, assuming the busboy was part of a comedy act – after all, how often does a building burn down?

Smoke began to fill the room. Two minutes after the busboy's warning, the room exploded in a fireball. The remaining patrons panicked. Many escaped, others didn't. By next morning, firefighters had found 134 bodies, several of them still seated upright at their tables.

Social connections can be a lifesaver – bonds of trust hold together military units in situations that would reduce one man to terror – but fear can also be contagious. In February 2003, about 500 people were crammed into a nightclub on Rhode Island to hear the band Great White. Soon after the set started, onstage pyrotechnics set fire to acoustic foam that lined the wall. The band stopped playing, the fire alarm went off and the crowd surged towards the door. Gripped by terror, most of them committed a common error: Having not taken note of where the fire exits were, they moved, en masse, to the door through which they'd entered. In less than a minute, people were jammed in the doorway. The tragedy claimed 100 lives, with 31 bodies recovered from around the front door. None were found by the other three exits.

How does fear spread? Neuroscientists have identified 'mirror neurons' in the brain that fire whether we see someone else perform an action or we perform it ourselves. We live what others live via our imagination – when we see someone embarrassed, we feel embarrassed; when we see someone injured, we feel queasy; the face of a terrified person is itself terrifying.

But there may be a more direct route between people's fear. In a group experiment at Stony Brook University, New York, skydivers wore gauze pads to collect sweat. Volunteers later breathed extracts of the skydivers' sweat while lying in a brain scanner. They weren't conscious of an aroma, yet their brains showed heightened activation in the amygdala (the area linked to emotion). The scientists concluded that, during stress, humans release pheromones that send an alarm signal to others in the vicinity.

All things considered, when faced with fear, be careful whom you mill with. Panic and courage are both contagious. **SM**

This is an edited extract from Extreme Fear: The Science of Your Mind in Danger *by Jeff Wise (Palgrave Macmillan, $49.95), out now.*

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