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ESSAY

When Our Memories Are Both Vivid and Wrong

Our 'flashbulb memories' of shocking events like the Challenger disaster or 9/11 seem sharp but are almost always inaccurate



The U.S. space shuttle Challenger lifts off from the Kennedy Space Center in Florida, Jan. 28, 1986. The shuttle exploded 73 seconds into the launch. *PHOTO: NASA/ASSOCIATED PRESS*

By **MICHAEL D. LEMONICK**

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The explosion of the U.S. space shuttle Challenger, which killed its seven astronauts, took place 31 years ago this week. I remember that awful day in vivid, almost cinematic detail. I was in my cubicle at Science Digest magazine in New York City. A friend called to tell me what had happened. I ran over to the office television and switched it on, calling to my colleagues to join me. I know the TV was tuned to CBS because I remember Dan Rather's ashen face on the screen. While we watched in horror, I glanced down at my hand, which was clutching a postcard I had gotten that morning. It confirmed that NASA had received my application to be the first journalist in space.

Except that isn't how it happened. Clear as that scene is in my mind, it's impossible. As a monthly magazine with a three-month lead-time and, of course, no website in 1986, we didn't cover breaking news. We had no office TV. I must have watched the news when I got home later that day. And if that detail is incorrect, others probably are as well.

Psychologists call such recollections “flashbulb memories”—the nearly photographic recall of particularly shocking events. I also have flashbulb memories of 9/11 and the assassinations of Martin Luther King Jr., Robert Kennedy and John Kennedy. For my parents' generation, Pearl Harbor, whose 75th anniversary was commemorated last month, is another. In every case, the memories seem as sharp as though they had happened just yesterday—and they are almost always wrong, at least in part.

Scientists have long known that memory is unreliable. It isn't like a video recorder, storing events faithfully for the future, as the experimental psychologist Elizabeth Loftus of the University of California, Irvine, likes to say. What we remember is usually based on what actually happened—but tainted by related information that we might have acquired days or even years later. We might talk over the event with friends, for example, mingling their own memories with our own. We might read about it. We might see a movie and subtly incorporate parts of the film into what we think we experienced firsthand.

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That makes sense in evolutionary terms. Our memory systems weren't designed by natural selection to help us tell precise stories, which would have had little survival value. They were designed to help us accumulate knowledge to make sense of the world and to navigate it better.

The Challenger tragedy reminded the U.S. that space travel is incredibly dangerous. Pearl Harbor jolted Americans out of their isolationist complacency. When our brains update flashbulb memories, they become less accurate, but their essence remains very much intact.

My own memories of the Challenger disaster bear that out. So does a study of how another group registered the same events, published in the 1992 book “Affect and Accuracy in Recall,” edited by Eugene Winograd and Ulric Neisser. The day after the shuttle explosion, students at Emory University were asked to write down their

recollections of the disaster. They were asked to do the same thing again nearly three years later.

In most cases, the later versions differed significantly from the earlier ones. One student, for example, said the day after that she had first learned of the tragedy while watching TV in her dorm room; two years later, she remembered—just as vividly—that she had heard about it in her religion class and had then gone back to the dorm to watch TV. Research has shown that, despite the malleability of flashbulb memories, people are generally very confident that their recall of such events is completely accurate.

THE LIMITS OF MEMORY

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The specifics of flashbulb events can change in our minds, but what is nearly impossible to erase is their emotional impact. I learned this recently while reporting on the case of Lonni Sue Johnson, an accomplished artist and musician

whose memory functions were devastated by an attack of viral encephalitis in 2007. More than nine years later, she can no longer remember most of her past and is largely incapable of forming new memories.

Ms. Johnson was questioned on videotape by Michael McCloskey, a Johns Hopkins neuroscientist, who urged her to ponder the terms “9/11” and “September 11.” At first, she said that they meant nothing to her. But after some probing, she wondered whether something bad had happened. With more probing, she guessed that it was perhaps an earthquake, or a war.

And then, this woman with a memory so damaged that she can’t recognize some of her oldest and dearest friends, said, “Did a plane crash into a building?”

—*Mr. Lemonick is opinion editor at Scientific American and the author of “The Perpetual Now: A Story of Amnesia, Memory, and Love,” out Feb. 7 from Doubleday.*

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