The Washington Post

Speaking of Science

‘We have a fire in the cockpit!’ The Apollo 1 disaster 50 years later.

By Sarah Larimer January 26

Sheryl Chaffee remembers the January evening when astronaut Mike Collins came to the door and asked to speak with her mother.

The two talked in a bedroom of the Chaffee home. Then Collins emerged and Chaffee and her brother were sent in to speak with their mother.

“So we went back there, and she told us that our dad was never coming home again,” said Chaffee, who was 8 years old. “Of course, I really didn't understand that. I think I even asked her, 'what, are you getting divorced?'”

Sheryl Chaffee's mother, Martha, explained that there had been a fire and her father, Roger, was dead.

“And then she gave me a necklace with two hearts, that he had planned on taking up to space with him,” she said.

It has been 50 years since the Apollo 1 fire killed Roger Chaffee at Cape Kennedy’s Launch Complex 34 in Florida. Chaffee, along with astronauts Virgil “Gus” Grissom and Ed White II, died on Jan. 27, 1967, when a blaze erupted in their command module during preflight testing.

The tragedy occurred as the trio was preparing for the first manned Apollo flight. The disaster left families in mourning and a nation stunned. It temporarily stalled NASA's frenetic push to the moon. There was an intense investigation. Congressional hearings, too.

“To me, it's an emotional thing,” said Bill Barry, NASA's chief historian, who was 9 years old when the fire occurred. “Because space is risky and dangerous and it's hard to do and can be expensive. But ultimately, you want to do it in a way that you don't hurt anybody, and everybody comes home alive. This is a reminder that you have to be on your toes, and make sure that happens.”

In the aftermath of Apollo 1, NASA did make space flight safer, and in 1969, Neil Armstrong and Buzz Aldrin walked on the moon with Apollo 11.

“We found the problems,” said Bob Sieck, a former NASA launch director. “We fixed them. And as a result, the first time we attempted to put astronauts on the moon, and get them back safely, we did. And so, from my perspective, I think that the Apollo 1 crew would be good with that.”

This is what the children of Apollo 1 remember: Gus Grissom was gone frequently, said his son Mark, but when he did get to come home, they'd catch a game or go hunting. He loved his Corvette. He had a dry sense of humor. He was always thinking about how to make something better. Grissom had a poster printed up that read: “Do Good Work.” Grissom, a Mercury Seven astronaut and command pilot of Gemini 3, had concerns about the Apollo spacecraft before his death, Mark Grissom said, and he voiced them.

“I was kind of expecting him not to go,” Mark said. “But he was doing everything he could to get the thing ready to go into space. He wasn't having much luck.”

Five decades after his father's death, Grissom's son Scott said the fire should be reinvestigated, and called the Apollo families “mistreated.”

“They kind of ignored the Apollo 1 fire for 50 years. ... I mean, we've had tributes to Columbia and Challenger for years, and those are much more recent events,” he said.

Ed White III calls his dad a “renaissance man.” Astronaut White went to West Point, played soccer and ran track, and almost qualified for the Olympic team. He was the first American to conduct a spacewalk. He liked woodworking. He built his daughter a balance beam in their backyard.

“He wasn't afraid. Nothing scared dad in any way,” Ed White III said. “Fearless. Fearless, I would say.”

Roger Chaffee took his job seriously, his daughter Sheryl said, but liked to have a good time, too. They'd play with him in the pool, she said, describing her father as fun, and so smart. Apollo 1 would have been his first spaceflight.

“The day that it happened is pretty vivid,” Sheryl Chaffee said. “To tell you the truth, we relive it every year.”

The day it happened, the crew was going through what's called a “plugs out” test, a sort of dress rehearsal for flight. The test simulates flight conditions, so the craft was running on its own power.

The crew entered the command module at around 1 p.m. There was a bad smell, which put the rehearsal countdown on hold but was later found to be unrelated to the fire. There were also communication problems. “How are we going to get to the moon if we can't talk between two or three buildings?” one of the three can be heard saying in a recording from the capsule.

At 6:31 p.m., cries began: “We have a fire in the cockpit!” That's also captured on the recording, along with a scream. Those watching on a video feed saw White appear to reach for the handle of the hatch. The command module “ruptured,” according to a NASA summary, and flames and gas spilled out.

“The burst of fire, together with the sounds of rupture, caused several pad personnel to believe that the command module had exploded or was about to explode,” it states.

It took personnel about five minutes to open all the hatches into the capsule. And once they could get inside, they could barely see anything at all.

A Washington Post story from Jan. 30, 1967, carried the observations from a writer who was allowed to look at the craft. It was headlined: “It Looks Like the Inside of a Furnace,” and described the interior of the spacecraft as a “darkened, dingy compartment … Its walls are covered with a slate-gray deposit of smoke and soot; its floor and couch frame are covered with ashes and debris.”

The crew died by suffocation from the fire's toxic gases, according to a review board report. They also suffered thermal burns. The Associated Press, describing the deaths in a recent report, wrote: “It was over for them in seconds.”

Mark Grissom was out playing that night when another child came to fetch him. He was told to head home, that something had happened at the Cape. Scott Grissom was home when the doorbell rang. He went to the door, and found the wife of another astronaut.

“She had a ghastly look on her face,” Scott Grissom said. “And I knew it was something bad.”

Ed White III rode his bike home on that evening after playing football. Neil Armstrong's wife, who lived next door to the White family, was standing in the driveway. Ed and his sister were sent to another neighbor's home.

“We didn't go into our house because they were talking to my mom about what had happened, and they weren't ready to tell us, but we knew something was wrong,” he said.

Those involved in NASA and the Apollo program remember that night, too.

Walter Cunningham, along with Wally Schirra and Donn Eisele, was part of the backup crew for Apollo 1. They had gone through a similar test the night before.

“When we got back, we came in and parked the airplanes, there was a guy out there, the assistant head of the flying department there, that took us upstairs to tell us they'd had the fire while we were on the way home,” Cunningham said. “And that they were all killed. And that, in fact, was a shock to us.”

A review board ultimately identified a number of conditions that led the fire. The sealed cabin had been pressurized with pure oxygen, which fuels fire. There were combustible materials all around the capsule, as well as “vulnerable” wiring and plumbing, according to the NASA summary.

In the wake of the fire and investigation, the capsule's hatch was replaced with one that would open outward quickly. The cabin atmosphere during prelaunch testing was no longer 100 percent oxygen, but rather a mixture of oxygen and nitrogen.

The crew's spacesuits were changed from nylon to beta cloth, which is nonflammable. A lot of the flammable Velcro that had been stuck around the cabin was taken out. The capsule underwent a “huge rebuild,” said Barry, the NASA historian.

The accident also led to a greater, although still imperfect, emphasis on safety.

Before, Barry said, “NASA sort of built the safety structure into programs. After the Apollo 1 fire, NASA set up a completely separate safety organization that was parallel alongside, so they weren't reporting to the same bosses.”

The fire made NASA personnel more aware and focused on “quality control,” said Charlie Duke, another astronaut. Cunningham, who was on the backup crew, said it didn't really change him as an astronaut, but

“may have given me a little bit more mental commitment to not go along with some of the things on the design, and what-have-you.”

After the fire, Sieck said, personnel did speak up more.

“There was a lot more questioning of, 'well, please explain this to me,'" Sieck said. "'I see what's here, I hear what you're saying, but tell me more. I don't totally understand it.'”

It was a lesson NASA would have to learn again after the space shuttle Challenger disaster. And again after the space shuttle Columbia disaster.

The graves of Chaffee and Grissom can be found at Arlington National Cemetery. Ed White is buried at West Point. This week, their families gathered in Florida for the Astronauts Memorial Foundation's annual day of remembrance, which honored Apollo 1, as well as Challenger and Columbia crews.

The Associated Press reported earlier this week that though the capsule is still kept in storage, the Apollo 1 hatch will be on display at Kennedy Space Center.

These anniversaries are difficult for Sheryl Chaffee. As a child, she would dream of her father coming home after his death. As an adult, Chaffee eventually went to work for NASA herself, starting in a temp position and recently retiring after more than 30 years.

She said she remembers walking through the buildings of the Space Center, thinking, “I know I'm going to see him out here. He's just hiding from us.”

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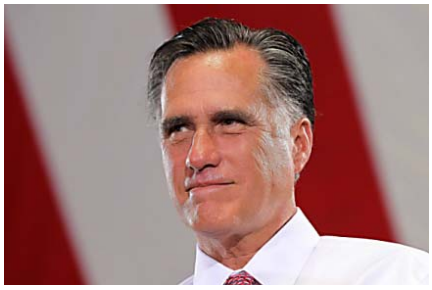

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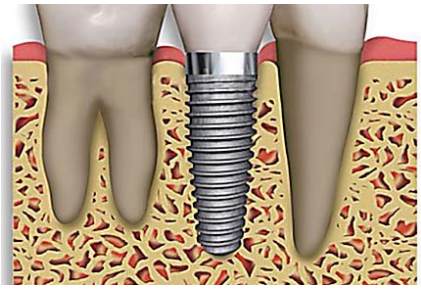

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