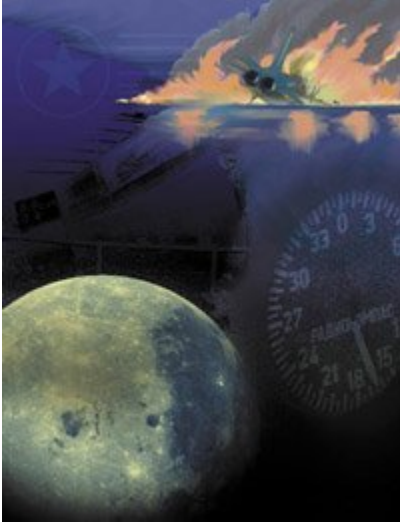


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Losing The Moon

By W. Pate McMichael



Forty years ago a fatal plane crash at Lambert Field nearly destroyed Project Gemini, the second phase of the country's journey to the moon. Later that year McDonnell Aircraft finished its pioneering work on the moon space program and another company took over—at a price NASA can never repay.

Reconstructed from interviews with former McDonnell Aircraft employees, NASA reports and oral histories, and McDonnell Aircraft documents generously provided by Boeing historian Larry Merritt.

On February 28, 1966, Gemini 9 astronauts Elliott See Jr. and Charles Bassett took off from Houston at 7:41 a.m. and climbed to 41,000 feet, riding in tandem aboard a T-38 NASA jet that had earned the nickname “White Rocket.” They’d made the flight 25 times over the past year. Flying supersonic, their backup crew in a separate plane beside them, the two men were soaking up a beautiful Monday morning, knowing that the weather would soon deteriorate as they approached their destination: St. Louis, capital of the winter-weather mood swing.

That morning, in a small second-floor office in Building 101 at Lambert Field, head

foreman Bill Watkins met with his crew to plan the day's shift. McDonnell Aircraft had already finished See and Bassett's Gemini 9 spacecraft; it stood over in a corner of the hangar, nose to the sky, clean and ready to go. Earlier in the month, the two astronauts had completed altitude-chamber tests; here, in a few minutes, they'd begin two weeks of rendezvous training. McDonnell only had three more Gemini space capsules—10, 11 and 12—to build. That was the task at hand.

A little after 8 a.m., See radioed Little Rock for a weather report. Visibility had shrunk and it was raining, but the ceiling—the distance between the ground and the lowest clouds—remained high. At 8:37 a.m., Lambert forwarded its forecast, and, sure enough, the ceiling had dropped severely and there might be a little snow. At 8:48 a.m., Lambert prepared for an instrument landing system approach, a standard procedure when a pilot can't depend on his or her eyes to land a plane. The two planes descended from the clouds at 8:55 a.m., directly over the centerline of the southwest runway, only too high to land. See radioed in his intention to climb and perform another instrument-landing approach. The backup crew followed suit and would eventually land at 9:12 a.m. Meanwhile, See had changed his mind, opting to land visually instead. A talented civilian test pilot, he knew that completing such a bold maneuver in this weather would have its rewards: His Flight 901 would beat the backup crew to the ground by several minutes—and live to give them hell about it. The 38-year-old father of three still had a little vinegar in him.

“Ah ... this is 901, I'll turn over and come in on ... I think it's runway 2-4,” he radioed the tower.

Circling around at 500 to 600 feet and banking left, the White Rocket looked like a pale horse galloping astray, in and out of the low, dark clouds. To keep the runway in sight, See had to drop altitude because the ceiling kept falling. Continuing its bank to left and descending rapidly, the plane suddenly exploded out of a cloud, headed straight for the corrugated-iron center of Building 101, which housed their Gemini spacecraft.

Just weeks before the Soviets launched Sputnik in October 1957, patriotic McDonnell engineers such as Gemini technical director John Yardley persuaded Mr. Mac—McDonnell Aircraft's founder, James S. McDonnell Jr.—to fund research aimed at launching a vehicle into space with an American inside. Mr. Mac sank the company's research money into the project without assurance that the government would buy the prototype.

In January 1959, the gamble paid off. The newly created National Aeronautics and Space Administration picked the McDonnell design over 11 others to pilot the first manned space flight program—Project Mercury. Immediately, Mr. Mac corralled an all-star team of engineers, supervisors, mechanics and grunts inside a huge space laboratory at Lambert Field—Building 101.

In less than two years, this 880-member, mostly high school-educated crew would invent

a flying machine as novel, ambitious and awkward as the one in which the Wright brothers broke gravity at Kitty Hawk.

Bill Watkins saw it all. He was with Dave Norton, another foreman, on August 18, 1960, when Norton's secretary walked in at 3 a.m. with a note. Everybody had been working 12- to 16-hour days, trying to finish the first Mercury space capsule. All night they'd been waiting nervously for NASA's men to sign off so they could move the capsule down to Cape Canaveral and shoot it off into the heavens.

If NASA would ever sign the damn papers, Norton was thinking as he watched Marge hand Watkins the note. She wouldn't say who it was from. Watkins opened it, read it and burst out laughing. Then he handed it to Norton, down the chain of command as always. It read:

Wilbur, hurry back to the bicycle shop there's been a crisis.—Orville.

That was their boss' way of saying that NASA had signed off.

Aviation would never be the same.

In April 1961, NASA gave McDonnell a no-contest study contract for a two-man space capsule, just days after Russia's Yuri Gagarin became the first man to orbit the Earth. On May 5, Al Shepard rode the first manned Mercury—Freedom 7—into space and became a national hero. Shepard's success lit a fire under President John F. Kennedy, who 20 days later committed the United States to putting a man on the moon by the end of the decade.

By summer, NASA had mapped out its plan. The moon space program, as it became known, would consist of three projects—Mercury, Mercury Mark II and Apollo—carried out over the next eight years. McDonnell had the prime contract for phases one and two, which eventually became known as Gemini.

That November, McDonnell executives showed up at the Chamberlain Hotel in Old Point Comfort, Va., to present the company's bid for phase three, the Apollo contract. A few weeks later, the company received word that it wasn't good enough. NASA's contract board had recommended the Martin Co. first, North American Aviation second and McDonnell third.

NASA's James Webb, a former McDonnell board member, awarded the contract to North American despite the board's recommendation. Webb owed his career and his wealth to Sen. Robert Kerr, D-Okla., who had sent Webb to his state in 1953 to work for his oil conglomerate, Kerr-McGee, promising and delivering Webb \$1 million for his labors. After making Webb a fortune, Kerr recommended him as the perfect fit for NASA, a new executive agency Kerr oversaw as chairman of the Senate Space Committee. Now it was payback time. To win the contract, North American, which was swamped with NASA contracts, promised to build a factory in Tulsa so that Kerr could go back to Oklahoma

and brag about it. McDonnell never had a chance. NASA granted the company the no-contest Gemini contract as a consolation prize.

To be sure, McDonnell also had all the work it could handle—not to mention a back-alley plan to land a Gemini on the moon *before* Apollo.

See tried as hard as he could to miss the building. He fired the afterburners, broke hard right and pulled back on the stick. The plane crashed into the iron skirt of the building at 8:58 a.m. and slid across 101's roof, the right wing gashing it open and breaking off. The collision sent a sheet of flame across the exposed ceiling above foreman Domien Meert, who sat at his desk in a subassembly room. It sounded like a lightning strike. Honeycomb from the shattered wing slammed onto the escape-hatch window of the Gemini 10 spacecraft that Meert's 16-member crew had been prepping. The crew dived under workbenches, and one gentle soul had the presence of mind to help a disabled co-worker find cover.

Farther down the building, Earl Barnes, an electronics technician, was working alone in the second-floor darkroom when the plane continued its belly-flop across the roof, tearing through the ceiling directly above him. Part of the roof and shrapnel from the plane fell through the gash. Barnes bolted, only to return with a fire hose and a co-worker. They went to work on the ceiling fire, sloshing around in 8 inches of water from a broken pipe.

Sitting in the foremen's meeting next to Watkins, Jerry Richmond felt the shockwaves, heard the explosion and ran out. He hurried down the steps and stuck his head out a side door. The first thing he saw was the wheel from the T-38, lying on the ground. Stepping toward it, he looked to his right and saw the wingless plane, burning furiously in the parking lot just yards away.

The astronauts had died instantly.

See, who had been thrown in front of the burning fuselage, lay dead with his parachute half open next to Bassett, who had been decapitated; his severed head would later be found in the rafters. Richmond ran back inside and told everyone to gather in the White Room, the huge, extremely clean assembly shop that housed the immediate future of the U.S. space program. It had been spared the fire and flooding, but the number of casualties in the affected areas remained unclear as phones rang off the hook.

Richmond's wife, Sylvia, saw the news on the television that morning and feared the worst. She tried to call him, but the phones at McDonnell were busy. It just couldn't be true, she thought. They'd grown up together in Grandin, a town of 192 people in southeast Missouri, and married out of high school. Armed with \$50, they'd taken a bus to St. Louis, where Jerry had gone to work for McDonnell. He'd made supervisor at 19 and, over the past seven years, had been working like a dog building spaceships. During the Mercury years, he once worked 17 straight weekends trying to beat those Soviets to the moon. That hadn't killed him—or her—she thought, so he'd better not die today,

because it was their 14th wedding anniversary! At noon he walked through the door, smiling. Later that day he took her out and bought her a new pair of shoes. Amazingly, no one inside 101 was killed or seriously injured.

That afternoon, Mr. Mac (against the better judgment of his subordinates) climbed onto the roof to survey the damage. He ordered a tarp to be laid over the deep gashes in the roof and new steel with which to make the repairs. Debris lay scattered inside and out of 101, with little white tags on each scrap for the forthcoming investigation. The next day, Missouri's largest employer put its 37,000 workers back on the job.

Two days after the crash, McDonnell employees wheeled See and Bassett's Gemini 9 spacecraft out of the wounded building, past a series of flags at half-staff, and loaded it onto a C-124, a cargo plane nicknamed "Old Shaky." The capsule was flown off to the Cape, where preparations for its summer launch would begin. See and Bassett were taken to Arlington and buried. The backup crew would take over.

The only other significant change to the mission came when NASA had to use a backup rocket after a failed launch in May. The new mission, Gemini 9A, began June 3, 1966, and ended three days later as a relative success, as did the last three missions that fall.

In late November 1966, McDonnell's role in the moon race ended quietly. Gemini hadn't drawn as much publicity as Mercury because it effectively amounted to a warm-up for Apollo—the curse of the middle child. Still, 10 successful missions had proved that NASA could dock and rendezvous vehicles in space—both mandatory for a lunar landing. The plane crash, a poor judgment call on the pilot's part, had been the only tragedy.

Nonetheless, NASA scrapped McDonnell's back-alley proposal to land a Gemini on the moon. The company passed the baton to North American at the end of the year.

Bo Hill was one of the McDonnell employees who moved back to St. Louis when the NASA contract ended. Hill had been in Florida, at Cape Canaveral, since 1960, working on space capsules with nothing but a high-school diploma and some military experience. He'd even sold his house in St. Louis because McDonnell planned on needing him at the Cape (for space ventures that never materialized).

Not that he called St. Louis home. Hill's hometown, Mill Spring, Mo., (pop. 250) was so small, he saved face by telling everyone that he grew up in neighboring Piedmont (pop. 2,100). Serving stateside during the Korean War, he fell in love with aviation down at Pensacola and decided to drive by Lambert one morning while visiting his wife's parents in St. Louis. McDonnell had a sign in the yard: "Hiring." Hill walked in, filled out an application and returned a couple of hours later in work clothes for the second shift.

Before he knew it, it was February 20, 1962. The day America mounted its charge. The day 100 million people sat before their television sets at 7:10 a.m. staring at lab coats

embroidered with the word “McDonnell.” The boys were working furiously to replace a broken bolt on the escape hatch, and Mr. Mac loved every second of the delay.

At 8 a.m. the hold ended and those 100 million people watched Bo Hill pressurize John Glenn’s Mercury space craft with highly flammable pure oxygen 120 feet above a mean, steaming Atlas rocket. He’d already pressurized Glenn’s 20-pound space suit. He’d already reached inside that tiny Mercury space capsule, Friendship 7, and taken pressure samples, though it wasn’t so friendly in there with Glenn barking “check” every two seconds. He’d already stood there with the other 12 or 13 people on the gantry and bowed his head as Glenn’s doctor said a little Presbyterian prayer. Hill pressurized that cabin like he knew how, and Glenn was off to try and orbit Earth.

Back in St. Louis, McDonnell’s crew crowded around the television they rolled into 101 during a launch. They were praying for John Glenn to cannonball old Friendship 7 into the ocean. He’d just orbited Earth three times, but everyone was still nervous. Because if ... for example ... that ablative heat shield McDonnell had invented fell off too early on re-entry, like it appeared to be doing, everybody in that room would have Glenn’s blood on their hands. They watched, eyes narrowed, barely breathing. Nothing ... nothing ... splash!

It wasn’t always that intense, especially *after* a launch. Hill would head back home to the Holiday Inn (everybody lived there in the early years), and they’d have a big party by the pool. Gus Grissom or Wally Schirra or some other fool astronaut would throw Hill in the pool with all of his clothes on and he’d throw them in the pool and they’d party like hell.

Hill’s boss, foreman Ed Martin, knew the original seven (the first pilots picked by NASA for space flight) as well as anybody. One day during the Gemini years, Martin found himself over at Patrick Air Force Base, walking from hangar to hangar, minding his own business. Out of the blue, some lunatic in an airplane buzzed him. Not thinking too much of it, he walked past another hangar, and the crazy bastard came again. “The damn thing’s chasing me!” he realized. Guess who was working the controls. Gus Grissom.

The other McDonnell men—Cal Moser and the rest of the crew—knew all about Grissom’s pranks. He’d even cut up in the White Room McDonnell kept at the Cape. This place had the feel of an emergency room, only more sterile and twice as serious. The air was filtered so clean that you were the dirtiest thing in the room. Everybody wore white coveralls, a silly surgeon’s cap, ladies’ stockings and antistatic shoe covers. To take a leak or smoke, you had to get completely undressed so as not to contaminate the uniform and pollute the space capsule. The man who ran the place and controlled the launch, a German named Guenter Wendt (a.k.a. Pad Fuehrer), kept a pipe stashed away in there, ready to maim anyone who panicked in the event of a fire and thus risked the lives of the 40 other men in the room.

Grissom came in one day to prepare for the first Gemini launch, and the camera that policed the capsule gyrated around the room as he tried to take his socks and tennis shoes off to get in the coveralls so that he could enter the Gemini. Grissom looked over at

Moser with a “watch this” smirk, walked right up to the camera and put his sock over the lens. About two seconds later, some stiff in the blockhouse yelled, “What the hell’s going on down there? Get that sock off the camera!”

Everybody had stood by Grissom when his Liberty Bell 7 sank in the ocean on July 21, 1961. McDonnell never disputed Grissom’s account, even though it reflected poorly on both crew and craftsmanship. Grissom said that the escape hatch had popped of its own volition, but many people suspected that he had panicked. To show them, Grissom named his Gemini 3 space capsule “The Unsinkable Molly Brown”—the title of a popular musical about a woman from Hannibal, Mo., who survived the sinking of the Titanic.

That first manned Gemini mission went well, with three orbits in a little over four hours. The only real tragedy came when Grissom, bobbing in the ocean, threw up a corned-beef sandwich that Wally Schirra had acquired from Wolfie’s and sneaked aboard. For that, Grissom caught hell.

In November 1966, McDonnell’s work—the camaraderie, the long adrenaline-spiked days, the 16 manned missions, each one ending safely—drew to a close.

By January 27, 1967, North American had built its first Apollo; it stood on Pad 34, atop a Saturn rocket. Inside lay Ed Martin’s buddy, Gus Grissom, the command pilot for the first Apollo mission, scheduled for February. Grissom, Ed White and Roger Chaffee were training, going over a checklist as North American’s crew tried to fix a communications problem. Suddenly Chaffee’s voice crackled over the radio:

“Fire. I smell fire.” White’s yell came next: “Fire in the cockpit!”

Roughly one hour earlier, who but the St. Louis space prince himself, John Yardley of McDonnell Aircraft, technical director for Gemini and project director for Mercury, stood before an Apollo advisory board. Yardley was suggesting practices that North American might consider borrowing from McDonnell to ensure safety and successful launches. After all, Yardley had helped design—or, rather, invent—Mercury. He’d overseen all of the early flights, debacles and successes; he’d practically invented the system for launching space capsules; he’d water-skied with the original seven about a million times. He knew what the hell he was talking about, and it went over like a brick through a window. Nobody bothered to pay attention; North American didn’t need any advice from McDonnell.

Seventeen seconds later, the screaming stopped. This time Grissom didn’t have the luxury of popping the hatch, because it was sealed from the outside. All three men died of smoke inhalation and suffered severe burns in what infamously became known as Apollo 1.

Yardley served as an advisor to the review board. It eventually concluded that corroded wiring had probably sparked the fire. With pure oxygen in the cabin, a spark was all it

took. McDonnell had launched 16 manned missions without killing one astronaut, using pure oxygen every time. Now North American had killed three before ever getting off the ground.

In the course of his thorough investigation, Yardley fell victim to manic depression and had to turn his inquiry over to others. He spent the next three weeks in a mental institution.

Before the tragedy, NASA had also asked Ed Martin to critique the way in which North American protected the space capsule during assembly and testing. Martin wasn't impressed. McDonnell had invented a system over the previous eight years for monitoring everything that went in and out of the capsule—every nut, every bolt. In addition to the camera, a man stood by the capsule and made sure that people entered and exited the vehicle with what they had brought in. Everyone in the White Room wore a uniform devoid of pockets. Bundles were built into the wiring, meaning that the wires were never bent and therefore less likely to shear and spark. North American didn't go to that extreme, Martin told NASA.

Word later surfaced that the space agency had expressed its complete dissatisfaction with North American's work a year before the tragedy.

Not that McDonnell's system worked perfectly. Every once in a while, a rogue washer would float by a weightless astronaut. Gordon Cooper, one of the original seven, loved jumping McDonnell's ass about that. He was so adamant, the boys gave him a ping-pong paddle for his Gemini 5 mission so he could swat away any floating debris.

That kind of camaraderie made all the difference. North American's crew couldn't cut up with the astronauts like that, because North American hadn't earned their trust. They hadn't put them on top of a mean rocket, lit the fuse, sent them into the heavens and brought them back home to their wife and kids. Nobody had, except McDonnell.

After Apollo 1, the whole program almost collapsed in the frenzy of investigations, infighting and finger-pointing—that is, until NASA and North American decided to make use of McDonnell's expertise. In April 1967, McDonnell merged with Douglas Aircraft to become the conglomerate McDonnell-Douglas. The Pad Fuehrer took over the contractor's launch operation, and the space agency practically kidnapped Yardley, who started taking lithium and went back to conquering the heavens. He didn't make it back to St. Louis for good until after getting the space-shuttle program off the ground.

In between—on July 21, 1969—Yardley saw his Mercury and Gemini work pay dividends. Neil Armstrong stepped out of that lunar module Cal Moser had left McDonnell to help build, and the moon race ended.

Kennedy's vision could have proved a mission impossible, had a tragedy like Apollo 1 occurred on McDonnell's watch. Without 16 straight successful launches, Congress might have cut NASA's budget and run from those smart Russians. Instead, McDonnell

Aircraft paved the way for Americans to walk on the moon—and allowed the country to rally and win the Cold War's only noble battle.