

1,875 FEET



350 MPH

"MAD MIKE" HUGHES REJECTED SCIENCE AND CHASED FAME.

Mike Hughes's homemade rocket launches near Amboy, California, on Saturday, March 24, 2018.



IT KILLED HIM.



THE MOJAVE DESERT HAD CAST ITS SPELL OVER “MAD MIKE” HUGHES THE NIGHT HE THOUGHT TO FLY TO THE EDGE OF SPACE.



It's no wonder why. The sky is fall-over-backwards big, wrapping around you in a way that hints at infinite possibilities. After buttery sunsets fade into glowing orange then purple light, the heavens do their high-wattage flexing. Maybe this struck him as an invitation, and maybe that celestial pull was amplified by the proximity to Hollywood, where his fantasies of fame could be spun up into life.

It was some intermingling of these elements that brought Hughes and his friend Waldo Stakes here, like so many others who found their way to Southern California's mythological landscape from places like Oklahoma City and Chicago: hungry but broke, flogging a dream, bristling with intelligence, and willing to chase an idea that others might consider unreasonable—like launching a man into the sky in a

homemade steam-powered rocket.

Pause for a moment and think about the undeniable elegance and utter simplicity of it: heating water until it launches—in a rocket, like from a child's drawing! Thousands of feet up! Has there ever been an idea so fanciful and yet so completely attainable? And what if that was just a precursor to something even more fantastic—being the first civilian to send himself more than 62 miles up to the edge of space?

All of this made total sense to Hughes and Stakes in the two years since this latest idea had come. But then there was a problem.

On the evening of February 21, 2020, Stakes, a self-taught rocket scientist, was arguing with Hughes about their rocket launch scheduled for the next day outside Barstow, California. Stakes was haunted both by a dream

a friend had had—a detailed vision of a nightmarish crash—and by modifications Hughes had made to the projectile after three failed launch attempts.

Stakes implored his friend to reconsider, to ditch the fourth try, and to focus instead on their plan to touch the edge of space.

But Hughes, as always, had his reasons—he had a new audience to win over, one more rung of fame to ascend—and the argument went nowhere. As much as Stakes was meticulous in his planning and strident about his science, he had a steadfast rule: The pilot is the daredevil putting his life on the line, and so that man, and that man alone, makes the final call.

Mad Mike was the pilot. And Waldo Stakes knew without a shade of doubt: Mad Mike wanted to launch.

◀ Pieces of old rockets built by Waldo Stakes and Mike Hughes sit on Stakes's ranch in Apple Valley, California. ▶ Stakes poses for a portrait on his ranch in a shipping container filled with daredevil and speed memorabilia.

Mike Hughes grew up a garage rat in Oklahoma City, forever rattling around the family auto-body shop. His father, Jay, worked on cars and raced them, and the story goes that Mike, the older of two boys, started attending the old man's events when he was two months old.

The elder Hughes was keen to indoctrinate his boys into his passion, says Bob Ponder, Mike's uncle. Both took to the work, and through years of tutelage Mike became accomplished in bodywork and began competing as well. "His father wanted them in the racing business," says Ponder. "So they raced motorcycles, cars, whatever their father would help them get or build."

Mike started racing motorcycles when he was 12, tearing around tracks of ice on studded tires. As a young man Hughes turned pro, competing on the American Motorcyclist Association's flat-track circuit. In 1979, in his 20s, he became a champion speedway motorcycle ice racer.

The family believed him to be a savant. "Mike was brilliant," says Ponder. "He was a reader. He read everything he could get his hands on."

Still, Hughes never went to college, and the obvious conclusion is that instead he simply pursued what he loved. But his close friend Stakes says Hughes never had a stable home from which to launch his life. "His dad was mean," Stakes says. "He smacked Mike around for no reason at all, all the time. Mike spent all of his young life trying to please his dad."

Once Hughes discovered his ability to reach the podium in dirt-bike competitions, Stakes says, he left home and never came back. He raced on tracks and on ice, and eventually worked on NASCAR pit crews for drivers Randy LaJoie and Rob Moroso. He ascended to crew chief on a NASCAR Craftsman Truck team. And thanks to his childhood tutelage, he was a skilled fabricator, once building the race car that Tom Cruise crashed in *Days of Thunder*.

At the same time, he drove a limou-

sine to earn extra income—a gig that spanned more than two decades of his life. After a while, none of that seemed enough, and he began looking to mine his unusual abilities for fame of his own. In 1999, he tried to build a car from leftover pieces and drive it to qualify for NASCAR's Winston Cup Series. He adopted the nickname Mad Mike, gave himself the title of the world's most famous limo driver, and in 2002 set a Guinness Book World Record by jumping 103 feet in a Lincoln Town Car stretch limousine. The landing left him with fractures in his back, but Hughes was undeterred, trying the next year for a new record of 125 feet. He didn't hit the distance, and the car rolled onto its roof before he emerged unhurt.

The limo jump earned him an appearance on *Jimmy Kimmel Live*, but his 15 minutes ticked away too quickly for his liking. In 2007 he self-published an autobiographical

tell-all book about NASCAR, and a year later, he began working on his latest attention-grabbing stunt.

Looking to the biggest name in the daredevil realm, Hughes thought he would attempt Evel Knievel's unsuccessful Snake River Canyon jump from 1974. That required replicating Knievel's rocket-powered Skycycle X-2, so he hunkered down to work—but rocket science requires money and precision, and Hughes was broke and often impetuous and prone to corner-cutting.

He had made only modest progress when, in 2011, his phone rang.

The community of homemade-rocket scientists is small and self-selecting. Waldo Stakes figures he knows most folks who have seriously dabbled with rocket engines, and when he heard about Hughes's Snake River plan, he decided to call





him. “I was curious about this rocket he was building,” Stakes says.

He found Hughes working in the back of a transmission shop in Redmond, California, and living out of his car. For his part, Hughes knew Stakes by reputation as someone with cachet in the arena of homemade rocketry, and he asked Waldo for an assessment of the vessel he was building. “I said, ‘It’s horrible, and it’s gonna kill you,’” Stakes recalls. “And he’s like, ‘Why?’ And I gave him 20 reasons why. He was trying to copy the Evel Knievel thing, but the SkyCycle was a bad idea. It comes off the ramp rotating like a badly thrown football.”

Still, two things impressed Stakes. One was that while Hughes knew little about rocketry, he’d actually built a reasonable approximation of a flying projectile. Stakes frequently fielded calls from idle dreamers with no skills or knowhow, and Hughes actually had the chops to fabricate a rocket.

And Stakes had passed his own

daredevil days, so if he was going to advance his passion, he needed someone else in the cockpit. Hughes’s track record suggested that he would actually pilot the rocket if he succeeded at building it. Anybody willing to endure a broken back jumping a limousine, and keep at it—those types were rare.

Stakes was just a few months older than Hughes. Growing up in Chicago, he’d been a sickly child; he contracted a series of tonsil infections that he says spiked fevers up to 108 degrees. Some doctors believed he had brain damage. “I was like the boy in the plastic bubble,” he says. “I don’t know if it made me smarter or dumber. If I was any smarter, I would’ve probably been a physicist or something like that—I had that kind of smarts.”

After his tonsils were removed at age 5, his life took off. His mother fostered his early love for science, and in sixth grade he won the Chicago all-city science fair. His father owned a car-parts shop and taught him how to

install motors; his mother fueled his passions by buying him Estes model rockets. He had borrowing privileges at eight libraries across town and would go from one to the next for new material, reading about aerodynamics and rocketry. When he was 14, his older brother bought him a 90cc motorcycle, which he modified for racing in farm fields. “I was a lunatic,” he says.

He started drag-racing both cars and motorcycles as a teenager and fell in with pioneering racers experimenting with rocket engines who were setting quarter-mile records 100 mph faster than conventional cars. After moving to California in the 1980s, he set out to build a rocket-powered ice racer. And in 2012, *Automobile* magazine dubbed him “Rocket Man”—Stakes told the writer that he was “building an icon of American technology.”

“I think of myself as an artist,” he said. “I’m Michelangelo working on the Sistine Chapel.”

It didn’t pan out. He burned through

◀ Stakes's memorabilia takes up several shipping containers on his ranch.

his money and couldn't find a sponsor, even though, he says, "it would go straight and was capable of 1,000 miles per hour."

Like Mad Mike, Stakes has the tendency to turn up as the protagonist in complex narratives that veer into the surreal. His next project was a car outfitted with a modified intercontinental ballistic missile engine. Unbeknownst to Stakes, his partner on the project went on a drug binge, swiped the engine, and sold it to an Australian team. The current version of the Aussie Invader—a land speed record challenger—is "running my engine, stolen from me," he says. And worse yet, he soon received a visit from agents from the FBI, Homeland Security, the OSI office of the Air Force, and NASA's Security Operations regarding his use of missile materials. "They came down on me like you wouldn't believe," he says.

It's hard to imagine what the government agents made of Stakes. Eventually, he says, "They realized I was a legit, straight-up guy...and they used me for a couple of programs they had. We looked into—uh, I can't really go into it, but just kind of like James Bond without the cool guns and the great-looking women."

Which is right around the time he found Hughes.

Hughes, then in his mid 50s, was youthful and lean, wore his blond-gray hair in a carefully blow-dried haystack, and was prone to spouting theories that anyone in any position of power in government is corrupt. Stakes was built like a tugboat, sported cursive script tattooed on his biceps, and could spitball on the intricacies of rocket aerodynamics at 200 words a minute. Different, certainly, but when they started talking about everything they might do, it was as if they were looking in the mirror.

Stakes invited his new, financially strapped friend to live at a small ranch he'd inherited in Apple Valley, on the southern fringes of the Mojave, in exchange for covering the \$300 monthly mortgage payment. He showed

HOW MIKE AND WALDO'S ROCKET WORKED

The steam-powered rocket operates on the same principle as a jet engine, creating thrust by expelling gas behind it. It's Newton's third law of motion: Every action (shooting steam) has a reaction (flying rocket).

WATER TANK

The rocket motor consists of a 112-gallon water tank with three internal immersion heaters. Over the course of four hours of heating, the water reached 400 degrees and 247 psi.

DE LAVAL NOZZLE

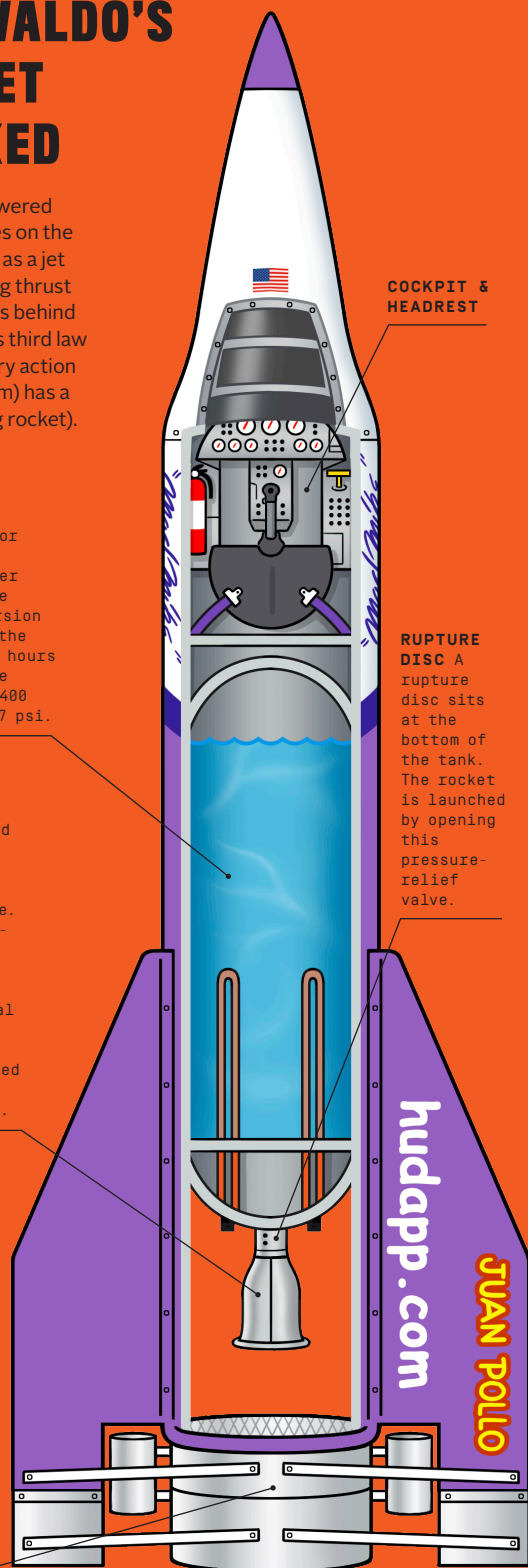
The superheated steam exits the rupture disc through a de Laval nozzle. Though a cross-section of the nozzle looks like a Venturi tube, a de Laval accelerates exhaust to a supersonic speed as the steam's pressure drops.

THRUST ENTRAINMENT DEVICE

This cylinder at the bottom of the rocket keeps the thrust plume contained to maintain a straight rocket path.

COCKPIT & HEADREST

RUPTURE DISC A
A rupture disc sits at the bottom of the tank. The rocket is launched by opening this pressure-relief valve.



Hughes how to balance his rocket and change its stance, how to pull the center pressure back, filling notebooks with drawings and measurements. Stakes envisioned a rocket based on a design that legendary engineer Robert Truax pioneered in 1965.

The concept is essentially a tea kettle with its spout on the bottom: Fill a cylindrical, stainless-steel tank with water, and crank it up to 400 degrees Fahrenheit using a propane torch. From the cockpit, the pilot engages O-rings at the bottom of the tank, causing steam to pour out a nozzle in superheated torrents powerful enough to propel a rocket. Stakes and Hughes built theirs to hold about 650 pounds of water, capable of providing 4,500 pounds of thrust, to ensure they could beat Evel Knievel's launch record of 500 feet (the distance they estimated that Knievel traveled over Snake River Canyon before the wind knocked him into the gorge below). Once the rocket hit its apogee, the highest point to which it could climb, Hughes would deploy parachutes and begin its descent back to the ground.

That was the idea. Stakes got Hughes started with two reinforced stainless steel tanks he had purchased years prior. "I wasn't sure he was ever gonna get it figured out, but a year and a half to two years later, he was making full power on a steam rocket," he says.

Hughes dubbed it the X-2 SkyLimo. There were logistical hurdles involved in the Snake River jump, so they got permission to launch in a canyon in Winkelman, Arizona, in January 2014. Stakes's mother died shortly before the launch, and he asked his friend to delay things for the funeral. Hughes declined. After all of the work he'd put into it, Hughes seemed impatient, determined to will the launch into being. "When

Mike set his mind on something, he was like a bulldozer that would knock everything out of his way," Stakes says.

This became a pattern. Though self-taught, Stakes was painstaking and methodical, checking and rechecking his math, a student of gravity, drag, and launch angles. Stakes says Hughes "had a very high IQ," but he was a riverboat gambler, a guy who wouldn't always buy into science even when he was betting his life on it. He saw the laws of physics as something he might hedge, like an investor shorting a stock.

"Mike would ask you, 'What do you think about this?'" Stakes recalls. "He'd sit down and take a bunch of notes, and then he wouldn't do anything you told him to. He just had so much faith in himself."

Stakes talked to Hughes like he was an obstinate, wayward little brother—someone who might actually get somewhere if he would only just *listen*. Hughes deferred to him on points of science but otherwise engaged in sibling-like battles. They fashioned these dynamics into an enduring friendship. Stakes and Hughes "had this really cool bond," says Tone Stakes, Waldo's son. "They loved to debate, and it became this Laurel and Hardy routine." Once when they went to Del Taco, one of Waldo's favorite fast-food franchises, Hughes triggered a friendly argument by questioning Stakes's request for double-cooked Crinkle-Cut Fries. Stakes took the bait: *Of course* you'd want them like that; they're extra crispy that way! Hughes countered that that crunchiness comes at the expense of the potato flavor—and that set them off on a lengthy round of verbal jousting involving the God-intended form and function of the humble french fry, the various merits

▶ Hughes enters his steam-powered rocket before his fatal launch on February 22, 2020.

of cooking-oil temperature, and so on. Only after they finally reached a consensus—that Hughes's undercooked fries were better with ketchup, and Stakes's were superior as a standalone side—did they agree to move on.

The launch was a success—and a fiasco. Stakes had told Hughes to set the launch angle at 58 degrees or more, so the rocket would climb vertically enough to gently return to Earth via the parachutes. Hughes, still thinking about his limo jumps and wanting to cover the greatest distance possible, set the ramp at 52 degrees. At that angle, Stakes explains, "you're coming down at the same velocity you left at." If you go more or less straight up into the sky, gravity gradually reels you in, slows your velocity. Hughes's low launch point meant that his arc was more like a bullet aimed at a target.

The morning of launch, Hughes heard a hiss—a pin leak in a recent weld. The rocket, leaking steam, was now essentially a pipe bomb that could tear open and explode at any second. Instead of aborting, Hughes ordered the crew out of the area, slapped on his six-point harness—a process that, done correctly to be fully snug, takes around five minutes in a race car—and hit the launch button. Soon after leaving the launch pad, it went into a horizontal flight, and absent the need to fight gravity, surged up to around 350 mph. Hughes briefly passed out from the G forces (though he initially denied this to Stakes), and, dazed when he came to, panicked and threw the chute. The parachute, designed to open in airstreams of about 100 mph, shredded. The rocket covered 1,374 feet in 11 seconds, easily beating Knievel's record.

But Hughes hit the ground at 60 mph. It could have, and probably should have, killed him. He used a walker for two months afterward.

■ ■ ■
HE SAW THE LAWS OF PHYSICS AS SOMETHING HE MIGHT HEDGE, LIKE AN INVESTOR SHORTING A STOCK.

The first attempt may have gone awry, but it proved to both Hughes and Stakes that they had a workable concept. Emboldened, they pushed forward on a second rocket, convinced they could make one



that could travel farther. But the second launch attempt was even more of a debacle. Hughes and Stakes argued about Mike's decision to use cut-rate parachutes, after which Stakes boycotted the flight attempt. The rocket prematurely ignited before Hughes had even clambered inside, and a crew member was seriously injured.

Hughes pressed on, and in 2017, hooked up with an organization advancing the notion that Earth is flat. Hughes was single and estranged from his two adult sons; he lived alone with four cats, and spent dozens of hours sponging up various forms of internet quackery. (He believed in the legal hoax that spelling other people's names in all capital letters makes them a separate entity that can be acquired by filing paperwork with the state of California. He would then sue those parties for using his "property.") What Hughes actually believed about the planet's shape remains the subject of a surprisingly vigorous debate, but what's unquestionable is that Hughes was opportunistic. If someone offered him money, he would take it without bothering to negotiate, says Tone Stakes. The younger Stakes, who makes his living working with NBA players to sell game-used shoes and is familiar with contractual language, tried to help Hughes at various times in talks with sponsors and television offers, but Hughes, true to form, uniformly rebuffed him.

Waldo Stakes was not a fan of Hughes's new flat-Earth benefactors. "Fishy," he says. "Everything they said was lies. They made it up as they went."

Still, with new sponsorships in place, including Juan Pollo, a rotisserie chicken restaurant chain, Hughes built his most powerful rocket yet: a projectile with an increased capacity of 112 gallons of water that would provide more than 7,000 pounds of thrust. After an unsuccessful launch due to several mishaps, including one where the crew damaged the rocket by dropping it, Hughes and Stakes tried again in early 2018. They gathered in Amboy, California, a Route 66 ghost town owned entirely by the founder of Juan Pollo.

The night before the launch, they sat around a small campfire, gazing into the incandescent canopy over-

head. Hughes said, "Waldo, you think you can get me all the way to space?"

"I'm not sure," Stakes said. "I'm gonna have to think about that."

Then he said, to the entire group, "You know, you can go up there and see if the Earth is flat." Everyone laughed.

Among the informal gathering that night was a reporter, who soon after ran a story stating that Hughes planned to fly to the edge of space to see for himself whether the planet was flat. The bizarre story was picked up by the *Associated Press* and published all over the world.

The flat-Earth partnership was good for headlines and an undisclosed sum of cash, but Hughes's new patron cost him steeply in public perception. The scruffy daredevil and wannabe folk hero had morphed into a crackpot involved in a paradoxical attempt to use science in order to undermine it. In his public statements, Hughes mostly took a "we'll see" approach to the question of the planet's shape rather than

repeat the deluded incantations of a true believer. But headlines called him a "flat Earther," and venom seeped into his social media feeds. "Do the world a favour," one of his Facebook page visitors wrote, "leave the parachute at home next time u fire urself into the air!" Many other commenters addressed him in far more profane language.

Toby Brusseau, co-director of the 2019 documentary *Rocketman*, about the Hughes launch in Amboy, believes the flat-Earth gambit was simply part of Hughes's insatiable hunger for attention. "I think he was using that for the marketing," the filmmaker says. "It was Mike's best marketing tool, and his worst."

The global story made Hughes famous, though, even as he prepared for a third launch attempt in Amboy. In addition to technical problems, the team's plans were thrown off course at multiple points by the Bureau of Land Management's insistence that Hughes



◀ Mad Mike is featured prominently in this shipping container on Stakes's ranch. ▼ The parachute separates from Hughes's rocket shortly after takeoff during his fatal launch.

stay off of federal land—a tricky proposition, given that they didn't know exactly how far the rocket might fly. As a remedy, Stakes's friend Garren Frantzen suggested they launch vertically, up into the sky, and see how high they could go. That removed concerns about where Hughes landed, and set in motion the evolution of ideas to come.

Hughes's March 2018 launch became the apex of his career as a daredevil, literally and figuratively. The rocket soared to 1,875 feet, and hit 350 mph. The only glitch was that Hughes was late deploying his second parachute, which popped out when he was just under 200 feet above the ground. The harsh landing caused compression fractures in two vertebrae. "I'll feel it in the morning," he told the AP.

The stunt made news around the world, and provided a triumphant ending for *Rocketman*. To top it off, Stakes called Hughes a week later to

announce an epiphany: He had come up with a way to fly his friend to the edge of space.

The idea was called a rockoon—a portmanteau of rocket and balloon. Stakes wasn't inventing this: The idea of floating things into space has been vetted since near the end of World War II, when a Nazi V-2 first made its way above Earth's atmosphere. Wearing a space suit, Hughes would travel inside a steel fuel tank that Stakes had MacGyvered into a space capsule. The container would be attached to a helium balloon 40 stories high, which would lift the ship 20 miles above Earth's surface. Once the balloon could ascend no further, the spaceship's hydrogen-peroxide rocket engine would propel the craft another 42 miles up, all the way to the Kármán Line, the border between the planet's atmosphere and space. Upon hitting apogee there, the spaceship would deploy a "ballute"—an eight-foot-diameter helium balloon in the nose of the craft that would keep it upright

through the first part of its descent. Eventually a series of parachutes would automatically deploy and lower the rocket to the ground regardless of whether the pilot was still conscious.

"Everybody laughs like it can't be done," Stakes says. "It can totally be done. I've gone all over the math." He estimated Hughes's chances of surviving the trip at 50-50, but Mad Mike was willing to take those odds, and he promised Stakes that if he looked back at Earth and saw a blue ball, he would admit as much.

"I thought that if we put this together, the whole world would want to see that," Stakes says. "They'll want to see a couple of hillbillies put together a spacecraft and go to space."

As Stakes began chipping away at the idea, which they estimated would cost \$2.8 million, Hughes's headlines pinged the radar of producers at Los Angeles-based World of Wonder Productions. The creator of reality shows such as *RuPaul's Drag Race* and *Million Dollar Listing*, WOW's executives conjured a show featuring regular folks trying to *continued on page 76*



“MAD” MIKE HUGHES

continued from page 45

reach space on a budget. The company sold *Homemade Astronauts* to the Science Channel, and signed Hughes and Stakes as their stars.

Though *Rocketman* had already been released, the producers wanted original footage of Hughes in flight. Hughes set to work building a new 19-foot steam rocket, and in the second half of 2019, with WOW's cameras present, he and Stakes tried repeatedly to launch. The first time out, the rocket sprung a leak. The second, the entire rocket overheated. (Stakes tried to cool it down, but when Hughes climbed inside, the seat burned a waffle pattern on his back.) The third time, a nozzle in the tail sprung a leak—not enough to foil them if they moved quickly, but a spooked Hughes decided to abort.

Stakes believed the metal plug they'd used to cork the steam inside the rocket was compromised, and came up with an alternate system: They would use a kind of rupture disc, a metal plate that would seal up the steam until it was intentionally punctured to release pressure—in this case, to launch. Stakes proposed a metal toe ball, like the ball on a trailer hitch, to punch the hole at launch. But Hughes instead devised an actuator that would pull the plate away.

Stakes didn't like it: There was a chance the steam wouldn't come out uniformly. “Mike,” he said, “I'm 100 percent against this.”

He consulted fellow crew member Danny Bern, who has nearly 60 years of experience working on pressurization and pneumatics systems for the stunt and racing industries. He was part of Danny Thompson's record-breaking 448-mph haul in a piston-powered car at Bonneville in 2018. He'd volunteered to help Hughes five years earlier, and they'd become friends—still he sided with Stakes on the rupture disc. “But Mike was very independent,” he says. “You couldn't change his mind on a lot of things.”

“He wouldn't have none of it,” Stakes says. “And since he's his own fabricator, I said, ‘Okay dude, we're good.’ I was mad at him for a month.”

And as a fourth attempt arrived,

on February 22, the presence of the film crew imbued the launch with a fresh urgency. “The production company had had enough of us,” Stakes says. “They were \$60,000 over budget because we'd had them come to three launches—we were under the gun.”

Others agree that there was a tacit pressure. “I definitely think that was a piece of it,” says Tone Stakes, who negotiated his father's contract with WOW. “Because they were kind of hinting at the idea that, well, they didn't really have enough to put the fourth episode together, and they wanted a little more action, because that was when they thought they would be able to really pitch the network and see about getting a longer-term partnership.”

He adds: “Mike was one of those guys that, anytime somebody offered him money, he was their guy all of a sudden.” (A WOW spokesperson declined to comment on whether there were implicit or explicit expectations that Hughes do the launch.)

Stakes could see Hughes warring with himself. The side of Mad Mike that valued his own life was permanently at odds with the attention- and approval-starved part of him that was determined, at age 64, to make a name for himself before it was too late. When they had first met, Stakes recalls, “I felt sorry for him because I could tell he'd never had anybody on his side.”

After setting up for the launch, Stakes drove Hughes home the evening of February 21. The desert blurred past outside the windows of Waldo's pickup truck, a 2002 Ford F-150 with 441,000 miles on it that he'd nicknamed the Gray Ghost. Hughes would spend the night home with his cats, his typical prelaunch ritual. Stakes used the quiet moments on the road to talk Hughes out of the launch. He said his friend Garren Frantzen had had a nightmare in which a rocket soared into the clouds, then crashed to the ground before its parachutes deployed.

Stakes says the dream struck him as a meaningful premonition, but Hughes waved him off: “Garren's just trying to rain on our parade.”

Stakes tried a different tack.

“There's so many other things we can do,” he said. “We've already proved we can build a steam rocket and jump it.” The incremental gains, he said, weren't worth the risk.

“Let's take any money we can raise and let's go to space,” Stakes told Hughes. “Let's quit screwing around with these things. Those things are gonna kill you. Every time you get in one of those, you throw the dice.”

Space, though, was worth the risk: Their exploits could inspire future scientists and explorers. Hughes was adamant. “I'm gonna do it,” he said. “I want them to have their own footage.”

Stakes replied that no matter what happened, this was his last steam-rocket launch. He was irritated that Hughes was doing it for the TV crew. “Fuck the production company,” he said. “Forget these guys.”

But he knew Hughes wouldn't listen.

AS MAGICAL AS the Mojave appears at night, during the day it's transformed into something forbidding: all sun-bleached scrub and searing UV rays and scorched earth—all things prickly, jagged, and venomous.

On launch day, the sky was hostile. The crew had reconvened on private property eight miles south of Barstow, and at least initially, everything proceeded smoothly, says Stakes. Rain had been in the forecast, but he knew it would hold off—after 30 years in the desert, he can smell oncoming precipitation. Bern would be operating the radio, communicating with Hughes. Mad Mike's goal was to fly a mile up.

The steam was superheated by early afternoon. Stakes has a typical launch routine: Sprinkle a few drops of holy water from the Vatican into the rocket's tank; then say prayers with the team and with Hughes individually. This time, Hughes refused the holy water; prayers would have to do. “The juju has to be good,” he says. “You gotta get right with God, because you could be seeing him in a few minutes.”

Hughes climbed inside the cockpit and strapped in. Clouds wheeled across the sky. Hughes rotated a ball valve a quarter-turn to *continued on page 78*

“MAD” MIKE HUGHES

continued from page 76

launch, and the rocket leapt skyward with an infernal hiss.

Stakes knew almost instantly they were in trouble. Just off the ramp, the vessel “jinked,” as he put it—jerked to the right. To his eye, the projectile was also carrying far too much velocity. It was inside the cloud cover 3,000 feet overhead within a handful of seconds, which would mean traveling at least 500 miles per hour. “I’ve never seen anything move that fast with a man in it,” Stakes says.

Mad Mike’s rocket briefly disappeared from view into the clouds, then gravity caught it. As it plummeted straight down, Bern repeatedly screamed into the radio, “Throw the chute! Throw the chute!” But there was no reply, and the craft’s two rocket-grade parachutes never emerged.

After 22 seconds aloft, the rocket, traveling faster than 400 mph, collided with the desert.

THE PUBLIC RECKONING was predictably swift and fierce. In the wake of his death, one last cycle of Mad Mike indignation churned though all of its wearisome life phases. A tweeted video of the fatal flight sparked more than 3,800 comments, some as brutally blunt as “Natural selection.”

The wreckage “looked like someone took a bunch of aluminum foil and crumpled it in their hands—remember, this is steel—and threw it on the ground,” Stakes says. He and Bern discovered that Hughes’s launch adaptation had failed him. The rupture disc came out of the rocket unevenly, turning it into what looked like “a slightly bent tortilla,” Stakes says. Where the pressurized steam escaped first, on the left side of the tail, it was so powerful that it sheared a bolt off the engine’s nozzle, opening the nozzle excessively wide and causing the vessel to accelerate at a ferocious velocity and lurch to the right just after the launch. Though the jink didn’t look catastrophic, Stakes says, “inside the cockpit it would be like somebody hit you in the head with a sledgehammer.”

If Hughes didn’t black out from that wrenching motion—or break his neck,

which Bern thinks is possible—the G forces from the rocket accelerating so violently likely knocked him unconscious. Any of these factors would explain the untouched parachutes.

The fate of the television show is uncertain. World of Wonders declined to comment.

Waldo Stakes still talks about moving forward with the rockoon project, with a new astronaut, but his son sees a difference in him since Hughes’s death. “It’s not anything we’ve moved on from, and I don’t think it will be anytime soon,” Tone says. “I think it’s something that will be with him forever.”

The younger Stakes says he misses listening to the conversational swordplay between his father and Mad Mike. “Sometimes you listen to them, you’re like, ‘I don’t know if this guy’s really smart or really crazy,’” Tone says. “I think it’s a fine line, and sometimes you go back and forth over that line.”

Perhaps Mad Mike’s legacy can straddle that line. His headlong pursuit of celebrity will rankle many people, and even those close to him acknowledge that the idea of it consumed him. “Mike was one of those guys that wanted to leave his mark on the world,” Tone Stakes says. “He wanted to have a name.”

Bern says that Hughes remained an enigmatic figure to the end, someone who chose quixotic homemade rocketry over profitable income and who lived like a “hermit” in a half-empty, unkempt house with an unmaintained yard. He urged Hughes to at least charge admission to the launches—if he was going to risk his life, he might as well make money. But it was as if for Hughes, the legacy was the only currency that mattered. “He lived and breathed those rockets,” Bern says. “It’s hard to explain, but it was his life.”

The question of what it’s reasonable to risk your life for will likely haunt us for as long as we occupy the planet. But Toby Brusseau had an epiphany when he was shooting Mad Mike’s 2018 launch. To capture footage of Hughes in the cockpit during the flight, the filmmaker needed to turn on the GoPro cameras he’d installed inside the rocket

just before launch. He had to hurry. “This thing is a bomb,” Stakes says of the steam rocket. “If it cracks or breaks a weld or something, it’ll kill everybody within a couple hundred feet instantly.”

The desert was so bright that the cockpit, by contrast, was pitched in blackness, and Brusseau couldn’t make out whether the battery pack was turned on. As he strained to see, Stakes and Hughes hollered at him to hurry up already, the rocket so jammed with superheated steam that it was almost quivering, and Brusseau himself was keenly aware that he was straddling a seething cauldron. But those sustained close-up shots of Hughes inside the rocket as it launched and floated through the sky to rising cinematic music before the craft landed with a rough jolt? Mad Mike’s face is filled with fear and uncertainty and determination, and also a kind of awe at what they have achieved. That would be the best footage in the movie.

Long after Brusseau had hurried down and away from the rocket, it hit him flush that he’d just risked his life for his film. Sure, it wasn’t an intentional decision—he’d just wanted that footage and went for it—but for a moment, he’d lost himself to the pursuit of his passion project, taking a chance he couldn’t have imagined if he wasn’t so spun up inside his quest.

Beyond his audacity, and a few misguided beliefs, Hughes was not so different than anyone who wanders into his basement or garage having hatched an idea in their head, and plunges ahead to see what their hands and brains and tools might do. Maybe that guy will build the fastest car on Earth, or design a new way to desalinate seawater to slake the world’s thirst, or find a way into space on his own. Mad Mike had the dreamer part of that equation down cold—the ability to see what he might mean to the world once he became the first human to forge his own path to the edge of the stars, the person willing to navigate a place where none of the rest of us could go. That was the easy part. It was only here on Earth that he could never quite find his way. **PH**