



# FLIGHT 232

THE STORY OF THE UNITED AIRLINES PLANE CRASH FITS BETWEEN TWO EXTREMES. IT IS AT ONCE ONE OF THE GREATEST ACHIEVEMENTS IN THE HISTORY OF AVIATION, AND A DESPERATE TRAGEDY THAT COST 112 PEOPLE THEIR LIVES. **CHRIS WRIGHT** BRINGS US EXCLUSIVE ACCESS TO THE STORY BEHIND A REAL-LIFE PLANE RESCUE

THE BURNT AREA MARKS THE SPOT WHERE THE PLANE EXPLODED ON IMPACT AT SIOUX CITY AIRPORT. THE OLD RUNWAYS ARE NOW USED AS TAXIWAYS

PHOTO: AP

On July 19, 1989, a United Airlines DC-10 took off from Denver, in the US state of Colorado, for Chicago's O'Hare International Airport with 296 people on board. You don't really see DC-10s any more, nor their configuration, but in their time they were one of the leading wide-bodied aircraft in the skies, driven by three engines, one on each wing and a third mounted in the tail. An hour or so after take-off, that tail engine exploded. Even worse — far worse — the shrapnel from the failed engine severed all three hydraulic systems for the plane, a combination of circumstances that had been believed to be impossible. No rudder. No flaps. In short, no control of the systems that are supposed to help a plane turn left or right, or go up or down, or to be in any condition to fly at all, let alone land.

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t that point, it's over. The possibility of all three systems failing was so remote that training was not provided for it. It was not survivable, so why bother? There is no way to land a jet aircraft with no hydraulic controls. But through a combination of extraordinary ability and a lot of luck, the crew brought the jet down in Sioux City, Iowa. And though it crashed, almost two-thirds of those on board survived when everything in aviation said that they should have died.

### CAPTAIN HAYNES

The fog is dense when *Discovery Channel Magazine* lands in Seattle late into the night.

Next morning, at a modest address near Seattle-Tacoma International Airport, the screams of the jet engines can be heard in the wet morning air, though the aircraft remain invisible in the dense fog. *DCM* is here to meet airline pilot Alfred C Haynes, captain of the fateful United Airlines flight 232.

Aged 81, he's been retired for some time. We find him fresh from working out on a treadmill downstairs, and he conducts the interview in his gym gear. On the shelves and mantelpiece are numerous model aircraft, including a United DC-10. There are four more boxes full of plaques and awards beneath the house, most related to the crash; there's not nearly enough room upstairs to fit them all.

Haynes was 57 on that July day in 1989, flying United 232. He had amassed 29,967 hours of total flight time with United Airlines, having joined more than 33 years earlier, in 1956. He'd spent a few years as a US Marine Corps aviator before that too. Basically, a professional lifetime in the air. Yet we ask, in all of that time, had any experience or training prepared him for a hydraulic failure on this scale?

"No." His voice is deep and firm. He's a baseball and football announcer of many years, and you can hear the steady authority. "A full hydraulic failure was considered to be something that could never happen," he says. "It was foolproof. I think a billion to one were the odds." It had happened just once before, in a Boeing 747 owned by Japan Airlines, four years before the United crash. The pilots could not control the plane and it flew into a mountain, killing 520 people in the deadliest single-aircraft accident in history.

That accident reinforced the view that if the hydraulics go completely, nothing can be done; hence the lack of training for it. "Since it can't be done, they figured it couldn't be flown, and if it did lose it all there's no procedure for it. So we didn't practice in the simulator. We didn't drill for it. We didn't train with it. It's completely foreign to us," he explains.

United 232 was a routine flight from Denver to Chicago.

Co-pilot Bill Records was the one actually flying the plane. In those days there was a second officer (a flight engineer) and that day it was Dudley Dvorak, sitting at his instrument panel.

"Bill's flying it, I'm working the radios. And we had just finished our lunch, and all of a sudden there was this big bang. The airplane was shaking. I thought it was a bomb, it was so loud, and I can't imagine what it was like for the people back there in the tail." He saw Records grab the flight controls, so he and Dvorak set about shutting the engine down.

"Dudley called my attention to his hydraulic panel. And I looked, and we had no hydraulic pressure. No fluid. Which can't be. And then Bill said: I can't control the airplane." That was no surprise. A total hydraulic failure means a pilot can't use the rudder, to turn the plane left or right; or the elevators or ailerons, which orientate it to go up or down. Worse, the plane was banking hard to the right, and could not be corrected using the flight controls.

"We realised we didn't have anything, and we were starting to roll over on our back," he recalls. "I turned around and Bill was calling for a maximum climb: the yoke was all the way back and all the way left."

That is, Records had the flight control column in a position that should lead to a roll to the left with the nose rising — a pair of inputs that would never normally be used simultaneously in flight — yet was receiving no response. "It didn't make any sense."

### THROTTLE GAMBLE

With no options left, and needing to stop the plane from rolling onto its back, they turned to the throttles. On big commercial aircraft, the throttles for all the engines are next to one another so that they can be operated in concert, and with one hand. On a DC-10, there were three of these throttles. With the centre one controlling the broken engine jammed, two hands were needed to control the others. By giving the right-hand engine more power than the left, they could at least



PHOTO: AP

EMERGENCY VEHICLES AT THE CRASH SCENE. MEDICAL PERSONNEL AT A REGIONAL TRAUMA CENTRE AND REGIONAL BURN CENTRE WERE CHANGING SHIFTS WHEN THE ACCIDENT OCCURRED AND WERE THUS ABLE TO ARRIVE AT THE SITE WITHIN MINUTES

start to cancel out the rolling motion of the plane, and to level off. "By experimenting with the throttles, we got the thing back level again. But now the problem was: what are we going to do to get the plane on the ground? And we didn't know."

Dvorak called United Airlines's maintenance team in San Francisco for advice. As they grappled with the yokes, the plane was now pitching up and down very slowly, a motion known as porpoising, or phugoid. "If you close the throttle on an airplane and leave it alone, it will porpoise until it finds the speed to fly," explains Haynes. "But because our plane was rolling, we had to keep changing the power." This meant stopping the plane from naturally finding its own equilibrium.

Having experienced the most extreme bad luck, a spot of better fortune flickered. A flight

## AFTER A DIZZYING SLEW OF RIGHT-HANDED TURNS, WHEN THE PILOTS EVENTUALLY REGAINED SUFFICIENT CONTROL OVER THE JET, IT WAS LINED UP WITH SIOUX CITY

attendant came to the front to say that a passenger had approached her, saying he was a training check airman, who had taught the DC-10. Would the crew like him to help? Haynes said: bring him up.

This was Dennis Fitch, known to all as Denny. Fitch was a DC-10 captain, albeit only recently qualified. More importantly, he was a trainer. A training check airman is someone who guides pilots through their mandatory annual check rides, a large part of which takes place in a simulator. Fitch supervised

these checks at a United facility in Denver.

"We get into a simulator," Fitch recalled in a later interview with the US TV series *First Person* (he is, sadly, no longer around to interview). "The flaps won't come down, the gear gets stuck, you have engine failures, hydraulic failures, electrical failures, explosions, fire — things are going to happen and you don't know what they're going to be. You just have to deal with them. This is how we train pilots, so they're ready for it whatever happens."

The fact that a man who was spending his life in simulators recreating *exactly* these sorts of emergencies happened to be at the back of the plane was one thing. But this would have been useless, had it not been for the willingness of the captain to accept his help. Which remarkably, is not the given that you might think (see sidebar, page 57).

Fortunately for everyone, the captain's training in crew resource management enabled him to invite a stranger into the cockpit and hand over the throttles. "After a minute, I reached around and introduced myself to him, but I was so busy I never even turned around," recalls Haynes. "You know, after the accident, I went into a hospital room to visit him. And as they brought me into the room I said, I hope he's the only one in there, because I have no idea what the man looks like."

Fitch was impressed by the crew's open-mindedness. "These three men were not known to me," he related in his *First Person* interview. "They were all Seattle-based, and I'm out of Chicago. At the time I think we had 7,500 pilots in the airline and we didn't know each other by name, face or reputation," he explained.

"He transferred to a perfect stranger the control of his aircraft. Now that is an amazing thing if you take into consideration that pilots don't give up control very easily."

Fitch had no magic answers from his many days in the simulators, but his extra pair of hands were proving vital, particularly since the throttles needed two hands instead of the usual one to operate them



PHOTOS: AP; AFTER COCKPIT VOICE RECORDER

**ABOVE:** CRANES HOLDING THE DC-10'S TAIL SECTION UPRIGHT. THE WRECKAGE WAS TRANSPORTED LATER TO AN INSPECTION SITE

**LEFT:** INSPECTORS FROM THE UNITED STATES NATIONAL TRANSPORTATION SAFETY BOARD CHECKING ONE OF THE THREE ENGINES

**RIGHT:** THE COCKPIT VOICE RECORDER AND FLIGHT DATA RECORDER DISPLAYED AT A NEWS CONFERENCE IN WASHINGTON, DC



independently. There was no spare seat, so Fitch operated the throttles by standing between Haynes and Records, who were battling other controls. "He smoothed out the phugoids," says Haynes, referring to the repeating upward and downward motions of the plane, somewhat like a sine wave, that were taking it up and down 2,500 feet (over 760 metres) per minute, as it tried to regain its natural equilibrium. "He never stopped them, but he had a slightly better control of heading." They worked together learning to anticipate what each of them needed. "That way, we got the airplane back."

A few more elements of good luck began to redress the balance, just a little, in the crew's favour. The explosion had taken place over the flat Midwest, in daylight, and without any of the storms that typically blight the region. And after a dizzying slew of right-hand turns, when the pilots eventually regained sufficient control over the jet to turn it around and keep it steady, it was lined up with Sioux City, Iowa.

"People say, why did you go to Sioux City? Because the airplane went to Sioux City. We were just keeping it flying. We didn't aim for anything." It would turn out to be an excellent decision on the part of the plane, since Sioux City's airport could take a DC-10, and the strength of emergency assistance on the ground there would soon become extraordinarily clear.

The transcripts from the plane's cockpit voice recorder make sobering reading as the men battled to bring the plane down. Throughout it all, the gallows humour remained. At one point, Fitch says, "I'll tell you what, we'll have a beer when this is all done." Haynes replies, "Well I don't drink, but I'll sure as s\*\*t have one."

And as they get closer to the airport, Sioux City Approach radios to give guidance on wind conditions and says, "You're cleared to land on any runway."

There is laughter in the cockpit. "Roger," says Haynes. "You want to be particular and make it a runway, huh?" Then he adds: "Whatever you do, keep us away from the city."

## MEAL INTERRUPTED

Further back in the plane, the flight attendants had done an exceptional job of keeping almost 300 people calm, despite the very clear realisation that they might soon die. On United 232, Jan Brown-Lohr was the lead flight attendant, and ultimately responsible for the rest of the cabin crew and all passenger safety. She was the most senior figure on the aircraft behind the cockpit.

As she tells *DCM* from Chicago, when the engine blew, her team were in the middle of a meal service. "I instinctively sat on the floor and held onto an armrest," she says. "I didn't know if it was a decompression, and I didn't want to be sucked out." She laughs lightly and disarmingly, as she often does.

Brown-Lohr says she recalled the Aloha Airlines Flight 243 in 1988, when a Boeing 737 suffered explosive decompression between two Hawaiian islands. "I always used to read about accidents to pick up whatever tips I could, and I knew that in the Aloha incident, the top of the roof came off," she says. "I heard a flight attendant went to make an announcement and was sucked out. That had made a very strong impression on me."

The plane stabilised after a few seconds. With the instincts of her profession, she surveyed passenger reactions. The first person she clapped eyes on was a mother holding her 22-month-old son. "She looked like she was going into panic," says Brown-Lohr. "And I don't have panic on my airplanes. I immediately went back to stop it before it spread. I spoke to her very quietly."

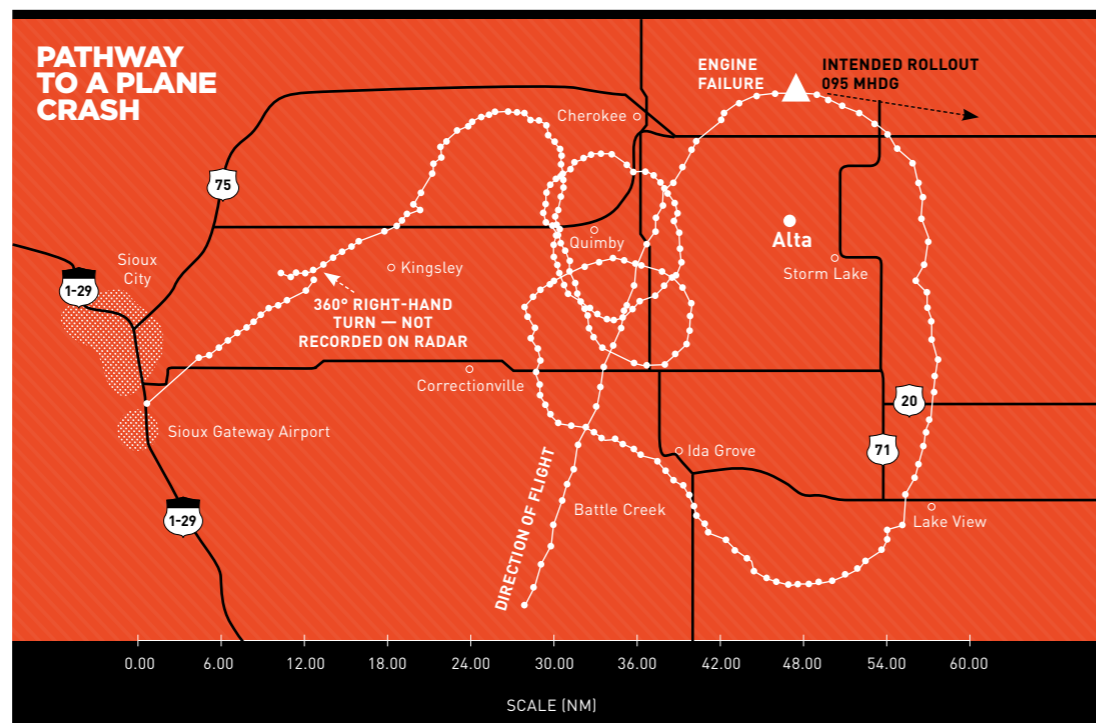
The woman was Sylvia Tsao, her boy, Evan. The two were to have a profound impact on Brown-Lohr's life, which continues to pervade it today.

While she was talking to Tsao, the first announcement, by Dvorak, was made. "I remember, he comfortingly said that we still had two engines. And that we would be okay."

When did she realise the severity of the situation? "When they called me to the cockpit and I opened the door," she says. "The minute I opened that door — the only way I've been



PHOTO: AP



TOP, FROM LEFT: HAYNES, RECORDS, DVORAK AND FITCH AT A NEWS CONFERENCE IN WASHINGTON, TWO MONTHS AFTER THE CRASH. HAYNES CONTINUES TO GIVE TALKS ABOUT THE INCIDENT, WHERE HE EMPHASISES THE TEAMWORK AND PROFESSIONALISM OF THE CREW IN HANDLING THE UNEXPECTED

able to describe it is as if you opened a furnace door, and the heat hitting you would be so enormous. For me, it was what was in the air," she recalls.

"It wasn't anything they were doing," she stresses. "Al (Haynes) and Bill were gripping the yoke, and I could see the strength they were putting into it. Dudley was doing his job. There was total calm. They were all professional and businesslike. But still, the minute that door opened, it hit me. This isn't just a garden-type emergency. This is a crisis."

Leaving the cockpit, Brown-Lohr focused on two things: what she needed to do in light of what Haynes had just told her about the state of the plane, and how her face should be looking. "I didn't look at anybody — it's like children cover their eyes and think, they can't see me. You can always tell fear by a particular look. And on an airplane, any time there's a bump, people look at you to see if they can read your face to see how serious it is. So I had developed, not a casual look, but an 'everything's okay' look."

In order to disguise the severity of the situation from the passengers, Brown-Lohr briefed her flight attendants in small groups, telling them to secure the cabin and prepare the passengers

**"IT SEEMED TO BE UTTERLY LUDICROUS TO BE TELLING PEOPLE TO TAKE THEIR MOST PRIZED CHILD, PUT THEM ON THE FLOOR, AND HOPE FOR THE BEST"**

for an emergency landing. "I couldn't call them together because it would tip the passengers off that something was wrong."

Brown-Lohr kept herself grounded. "I willed myself. I said, number one, I have to be calm. I've had instances in my past that made me stoic, or taught me stoicism. So I just make up my mind, something's going to be that way. And I don't consider there would be any other alternative."

She picked up the microphone and prepared herself to address the passengers about emergency

preparation. "I thought, your hand will not be shaking. That will not inspire confidence." Perhaps in part due to the calmness that she and her staff were projecting, there was no panic in the plane. "For the most part, I know there was underlying prayer, consternation and maybe a little crying. But I had a great crew, and I give credit to the passengers too. We went around as if it was business as usual."

Brown-Lohr had three children at home. "I never gave myself a thought," she insists. Given how exceptionally busy they were, you can almost believe it. "Even after we had done the emergency prep and the flight attendants had gone through the aisles reassuring people about their seat belts or answering their questions, even when we had rehearsed the brace positions and we were all in our jump seats, I remember thinking: have we covered everything?"

## SHOCKING REQUEST

And then she remembered. Lap children. This is the element of United 232 that would haunt Brown-Lohr more than anything else. Airline policy at that time dictated that for children under two without their own seat, they should be placed on the floor and surrounded by pillows or blankets, not held on the lap of the parent. There were four lap children on the plane.

Soon it came time to tell their parents to do it. "I could not believe I was uttering those words. It seemed to be utterly ludicrous to be telling people to take their most prized child and put them on the floor. And in other words, hope for the best." One flight attendant spotted "a blanket with a suspicious bump in it". She realised a man had tried to disguise the fact he had belted his child in with him; and had to convince him the best thing to do was put his infant on the floor. "It amazes me. To this day."

## THE BENEFITS OF OPEN CAPTAINCY

In the 1980s, and in many cases even today, the captain of a jet was viewed with such reverence that it could occasionally become problematic. Challenging the captain, or even offering him (and it was always a him at the time) advice, was in some cultures and airlines just not done. It would be disrespectful. In fact, this had been the case in the United States as well, in one instance leading to a crash on a United Airlines jet.

In December 1978, United 173 was on a scheduled flight from New York's John F Kennedy International Airport to Portland International in Oregon, with a stop in Denver. When the plane approached Portland and lowered its landing gear, the crew heard a loud noise, felt vibration and yawing, and saw there was no green light to show that the gear was down and locked.

The captain aborted the landing and set about diagnosing the problem, but spent so long doing this that the plane ran out of fuel and crashed, killing 10 people. On the transcript, the first officer and the flight engineer can be heard stating the level of fuel remaining, but the captain does not hurry up his approach — and his colleagues don't urge him to do so.

The US National Transportation Safety Board (NTSB), which investigates all crashes, said in its report that there were two principal faults: the failure of the captain to monitor properly the aircraft's fuel state, as well as "the failure of the other two flight crew members either to fully comprehend the criticality of the fuel state or to successfully communicate their concern to the captain".

After that crash, there were big changes in North American commercial aviation. For United Airlines in particular, the incident served as the catalyst for a change in the way airline crew were trained. The new approach was called crew resource management, or CRM.

"That crash on United is what caused us to get CRM," Haynes recalls. "The captain just wasn't listening, or wasn't hearing what he was being told, and he ran out of fuel and crashed. And that's what started CRM."

Humility was one key to the change. "What that programme taught me was: if you don't know how to do this, swallow your pride, swallow your ego, and find help anywhere you can. When you have a problem, let everybody there take part," he says. "One of the biggest, most successful things about CRM is that it taught the other two members of the crew: don't be afraid to speak up."

Fortunately, by the time of United 232, CRM had been in practice at United for eight years, and Haynes was well versed in it.

Yet she must have trained for it. Had it seemed ridiculous back then, or only when she had to try it in reality? "That's exactly it. I remember thinking: in a classroom situation this might sound okay, but right now it's totally absurd. How can we be doing this?"

The cabin was as ready as they could make it — a great achievement given that they had been halfway through a meal service less than 40 minutes earlier, and had to work in a pitching, tense environment. "After that," she says, "it was just waiting for the brace signal. I remember looking across at a businesswoman in a suit, wondering if she was praying. Her hand was up on her head, in deep thought. I wondered what she was thinking."

Haynes himself doesn't remember precisely what he said to the passengers at any point during the descent. "I told them, because of the control problems it's going to be a hard landing. Harder than anything you've been on — so please listen to what the flight attendants have to say as far as preparing yourselves. Something of that nature." He looks down. "They've told me it was enough to alert them, but not to frighten them. There was never any panic back there," he says.

The passengers, powerless, prepared themselves. Jerry Schemmel, who wrote a book about the experience, remembers automatically shifting his watch from Mountain Time to Central Time, for Sioux City. He later accounted for this apparently obscure attention to detail as "a nervous attempt to fill the frightening emptiness before touchdown". That done, he reviewed his life's successes and failures in his mind, then wrote a note to tell his wife where the documents for his new life insurance policy were. He recalls Haynes making his one final announcement, concluding, "And folks, I'm not gonna kid anybody, this is gonna be rough."

**HAYNES TOLD THE PASSENGERS: BRACE, BRACE, BRACE. IT LOOKED, FOR A MOMENT, LIKE THEY MIGHT ACTUALLY MAKE IT INTACT**

how long it's going to take Iowa to hit me."

An announcement from the cockpit to ground, seems almost chirpy. "We have the runway in sight. We'll be with you very shortly. Thanks a lot for your help." They had lined up with the runway at Sioux City — albeit not the one they had initially been going for — and though it was a closed runway, cracked and grassy, the ground staff had cleared it.

Haynes told the passengers: brace, brace, brace. It looked, for a moment, like they might actually make it intact. "There is a possibility," Fitch realised, "that we can make this survivable." But it was time for their luck to shift on its fulcrum once again.

The navigation station that would have told them how far they were exactly from the airport was out of service that day. Not that it would have made a huge amount of difference, so little control did they have. It had become clear to Fitch that there was an optimum speed that gave the crew as much control as they were ever going to get, but that speed was way above the 150 miles per hour (240 kilometres per hour) with which a DC-10 would normally approach the runway. They were approaching instead at 250 (over 400 kilometres per hour). The speed required a steep descent, all the more so since the 150-tonne plane would have no brakes to stop if it

ever landed, so it needed to get down at the very start of the runway. As such, they were pleased to see a field of corn at the end of it rather than a building.

At 400 feet (122 metres) above the ground, Haynes looked at the airspeed indicator, saw 220 knots — so fast that the tyres would explode — and said, "Pull the power off, slow us down." But Fitch knew this couldn't be done without the nose and right wing dipping. All he had time to say was, "I can't. That's what's holding the wing up." He knew he had one chance: a moment before landing, to pull all throttles back to idle and hope that the corn at the end of the runway would slow them down. "Then we're going to open eight doors, slides are going to inflate, 296 are going to slide down, we're going to the nearest saloon and I'm buying." But it was not to be. Fitch saw a suddenly high rate of descent as the plane entered a new phugoid: 1,800 feet (550 metres) per minute, three times in excess of the structural capability of the landing gear, and so he pushed both the throttles forward to push the nose back up and reduce the impact speed. "But there just wasn't time."

#### THE IMPACT

There is a video, at one stage believed to be the most frequently replayed clip in history, of United 232's last moments, taken from outside the airport perimeter by a news crew who had learned of the plane's distress. You can find it dubbed with the flight recording, and in the moments before impact you hear a voice (it is Records') shouting, "Left! Left! Left! Left! Left! Left!" An alarm goes off: whoop whoop, pull up, pull up. Whoop whoop, pull up, pull up. On the video, the plane vanishes behind a water tower, then appears again, briefly glimpsed between trees and telephone wires. There is a shout, the sound of someone in anguish. Then the next thing that you see is flame. The camera, or another camera, then shifts to a second vantage point through a wire fence at the edge of the airfield.



SOLDIERS FROM THE IOWA AIR NATIONAL GUARD WERE CALLED IN TO CONDUCT A SEARCH FOR MISSING WRECKAGE. THEY WERE ON DUTY AT THE AIRPORT WHEN 232 CRASH-LANDED, AND ALSO HELPED WITH TRIAGE AND EVACUATION OF THE INJURED. **BELOW:** PART OF FLIGHT 232'S FUSELAGE ON A SEMI TRACTOR-TRAILER. THE LARGE SECTION HAD BEEN LYING ON A CORNFIELD ALONG THE RUNWAY WHERE HAYNES AND THE CREW HAD LANDED THE CRIPPLED JET



PHOTOS: AP; GETTY IMAGES (JERRY SCHEMSEL)



The story of United 232 ended up on the big and small screens. It was used as the basis for a TV movie in which Haynes was played by Charlton Heston, but focusing more on the ground rescue efforts.

Then there was *Fearless* in 1993. Directed by Peter Weir, the film starred Jeff Bridges, Isabella Rossellini and Rosie Pérez, and depicted a survivor of a plane crash who finds he's lost all fear of death.

Appearing four years after United 232, it's clear that the 1989 crash inspired the framework of the movie, if not the behaviour of its characters. That the plane crashes in a cornfield, and survivors feel their way out to the runway, are both clear references; while even the overhead shots of the right-hand arc the wreckage takes from the runway is reminiscent of the aftermath.

Schemmel (*above*) was convinced that the Bridges character is based on him and started his book with a chapter called "I was never 'fearless'". Despite this, he would later find friends assuming that the rest of the movie, utterly fictional, was accurate. He says half a dozen people awkwardly told him they had no idea he'd attempted suicide (he hadn't, but Bridges's character did).

"I began to feel just a little exploited," Schemmel wrote. This gave way to anger and resentment, and eventually, to contacting a lawyer to ask about suing Warner Brothers. He decided against it, but wrote, "They caused me a great deal of pain. They made a movie about me and didn't even bother to tell me they were doing it."

Brown-Lohr, too, has good reason to be offended by *Fearless* — the Pérez character in the film is very clearly modelled on Tsao. In the film, she meets a flight attendant at a group therapy meeting and blames her for her son's death. By inference, this can only be Brown-Lohr.

"I was just stunned," she recalls. When she rented the film to watch at home, the scene between the mother and the flight attendant, which she hadn't expected, shocked her. "I was rather glad that I saw it at home rather than a theatre." Then again, she seems pragmatic: she also watched *Flight*, the recent film involving a plane that almost crashes, and found herself "upset about totally different things. How could she not report a pilot who drinks on a plane? I wouldn't have tolerated it for a second".

And Haynes? "That movie I objected to too. It acted like it was telling this story, but it was pure fiction."



### SAFETY FIRST

In 1990, the US National Transportation Safety Board (NTSB) expressed concern that the Federal Aviation Administration (FAA) had not “adequately addressed the issue of ‘infant’ occupant protection”. The NTSB, which had interviewed the Flight 232 parents who had been told to place their lap children on the floor and had also conducted its own tests using dummies, found that doing so would mean that parents could never hold on to the child during a crash. The FAA now encourages travellers to bring their own child safety seats whenever they fly.

AN INVESTIGATOR PEERS AT THE RUPTURED PASSENGER COMPARTMENT OF FLIGHT 232 A WEEK AFTER THE PLANE CRASHED IN SIOUX CITY. OPPOSITE: STILL RECOVERING FROM HIS WOUNDS, HAYNES WAVES TO MEMBERS OF THE PRESS AT A CONFERENCE ON JULY 25, 1989

PHOTOS: AP

As the right wing touches the ground before the plane, the wing breaks off and cartwheels, and the fuselage flips over. It is unthinkable, seeing the footage, as dense black smoke engulfs the wreckage, that anybody could have survived.

Fitch described the impact as being like a giant hand behind his head shoving his face into the radio. He bounced back off it, he said, like a jack-in-the-box. He recalled looking left and seeing corn stalks go by, and thinking: it's true, they really do grow the corn that tall in Iowa. “The captain of a DC-10 sits about 22 feet (6.7 metres) above the ground,” he realised. “They don't grow it that tall.” Clearly, the impact had taken out the landing gear.

He remembered “a terrible sound, a tearing of metal, G-loads, yaw to the right. Simultaneous with that change of direction was this sensation that something was drop-kicking you in the backside. You could feel yourself moving up and over, head over heels.” He remembered the windshield going completely green, then brown. “The heat, humidity and violence were beyond any words I could ever hope to bring forth.”

Schemmel, in the passenger cabin, would write, “It felt, for lack of any comparable experience, exactly like you'd expect it to feel if you'd dropped thousands of feet out of the sky and hit the ground.”

Schemmel felt himself floating in his seat, held back only by his seat belt. Even through his clenched-shut eyes he could tell that the cabin lights had gone out. He heard screams amid the sounds of the impact, reached out to brace again against the seat in front, but found no seat. Opening his eyes, he saw a human body fly past him upside down. Then another, a woman, strapped in her seat, on the other side of him. He described a storm of debris, the eye of a hurricane, a ball of fire from the front to the back of the cabin. A helpless feeling; a sensation of total vulnerability, while time moved in slow, elastic increments. Then the plane flipped, and remained upside down.

We ask Brown-Lohr whether she remembers the impact.

“Oh yes,” she says. And then there is a long pause. “In my wildest dreams I could never have imagined the impact,” she says. “It's like trying to describe the terror of being petrified. You're never sure the words are strong enough for the actual feeling. The impact of smashing into Earth? That's close, but it's not quite descriptive enough,” she notes.

“I remember involuntarily closing my eyes and saying to myself: I cannot believe my body parts are still connected, we hit so hard. I just passed out. And it saved my life,” she adds.

“I was in a flash fire as we were rolling over, and I went into a deep unconscious state. I thought I was starting to resist it, and then my grey cells realised: you're going wherever this is taking you,” she says. “Then I couldn't hear anything anymore. Initially, I was hearing all this screeching metal, and noises I never heard before. But then it was very serene, the state I was in. I realised I was on fire but I didn't feel any pain. The pain was gone. The best way I can describe it, is it was the most serene moment of my life. This is how I'm going to go. And as fast as that feeling overcame me, it was gone.”

She had lived. “Within a second or two we stopped. I was amazed: I'm still alive. And then the job just kicks in. Because if I'm still alive, then we're getting out of here.”

What had happened was this. At the moment before landing, the plane had entered another downward phugoid and veered right, leaving no time for the crew to compensate. The right-hand wing tip hit the runway first. Fuel was spilled, then it ignited. The tail section broke off. The landing gear was ripped from the jet, and the fuselage, after bouncing, bouncing, bouncing on the hard concrete runway, split into several pieces. The right wing came off. The main part of the fuselage rolled, entered a cornfield to the right of the runway, and came to rest upside down.

When the plane stopped, Brown-Lohr and everyone around her were hanging from what used to be the floor of the fuselage but was now the ceiling, amid dense, acrid,



**“WE HAD PEOPLE FROM 120 MILES AWAY RESPONDING TO THAT CRASH. THERE WAS A TREMENDOUS RESPONSE FROM THE PEOPLE ON THE GROUND”**

toxic smoke. “I had no sense of being upside down,” she recalls; though she couldn't undo the rotating dial on her harness, which in a jump seat had covered the shoulders as well as the lap. A man helped her, and she must have fallen on him as he undid the clasp, although she can't remember it. “My first memory is that I opened my eyes, and I was standing up, and it was black. I told him to get out. I didn't recognise anything: it was like waking up on another planet.”

The intense violence of the crash had killed many people on impact, but it would also save lives, by ripping gaps in the fuselage that people simply walked out of, into the cornfields. “We were open to where first class had been. There was no first class: the cockpit had separated back by the runway, and we were in a cornfield upside down. I was just looking for light. Light meant an opening.” She thought she saw someone's ankles, trapped, and tried to help by pulling them;

behind her, somebody said there was an opening, and she turned and saw it, through a mass of cables and other things hanging down. Next, she was holding all those cables to one side as passengers walked out to safety. “People were filing by,” she recalls, “in a manner that I could have been saying, ‘Thank you for flying with us today.’”

It was time to go. The smoke was increasingly intense. “It was like a tornado, except it was roiling on what had been the ceiling level. That forced me to leave. It was so deadly. I have never seen anything like that. That smoke, that dark black.”

She emerged, reborn you might say, into the cornfield. “Actually it never occurred to me that, oh my gosh, I'm in a cornfield. I was still working.”

### THE AFTERMATH

There were 296 people on board United 232. In all, 111 of them died in the crash, most from impact injuries, and 35 from smoke inhalation in the middle part of the fuselage, directly above the fuel tanks. Another would die a month later.

There was a random distribution of apocalypse. People died from row one to row 38. Some were unharmed, yet had neighbours on either side of them die horribly. There was no safe place to be.

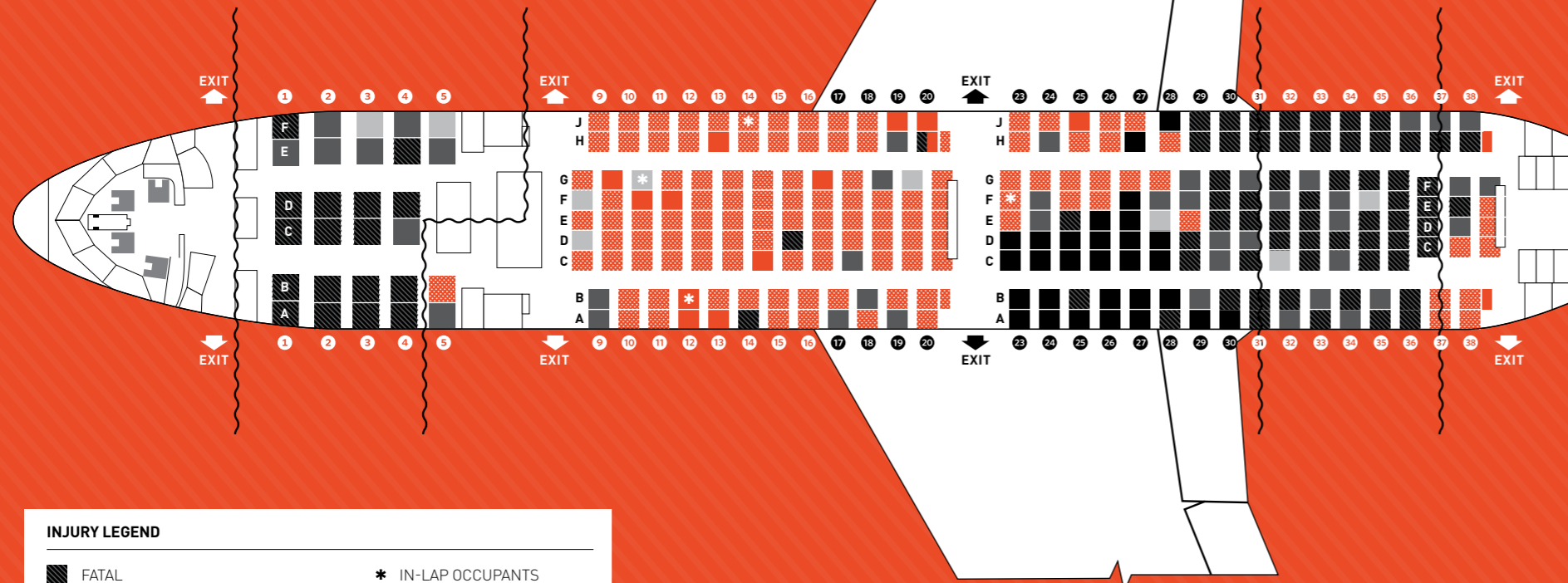
There were 52 children on board because of a Children's Day promotion by United Airlines. Eleven died.

The child passengers included four so-called lap children — too small to have their own seat; one died. It was Evan Tsao. And when Brown-Lohr emerged, she had her second acquaintance with Evan's mother, Sylvia.

The woman had not been able to keep hold of her son: how could she possibly have done so, in the unthinkable torsion of the impact? She had made it out of the plane, but on realising that her boy had not made it out with her, was trying to get back in again. “I see Sylvia coming towards me,” says Brown-Lohr, speaking very slowly now. “And I know she's heading to the wreckage. I blocked her path. She said, ‘I've got to get my son.’”

# WHO SURVIVED?

THE PASSENGER MANIFEST FOR FLIGHT 232 LISTS 296 PEOPLE ON BOARD. OF THIS NUMBER, 185 PEOPLE SURVIVED THE CRASH. MOST OF THE SURVIVORS WERE SEATED BEHIND FIRST CLASS AND IN FRONT OF THE WINGS, WITH 13 PASSENGERS WALKING AWAY FROM THE CRASH WITH NO INJURIES



### INJURY LEGEND

- FATAL
- FATAL (SMOKE INHALATION)
- SERIOUS
- MINOR
- NONE
- UNOCCUPIED SEAT
- \* IN-LAP OCCUPANTS
- APPROXIMATE BREAK IN FUSELAGE
- NOTE: PASSENGER WHO WAS ASSIGNED SEAT 20H MOVED TO AN UNKNOWN SEAT

"And then, recognising the flight attendant who had tried to help her, she said, "You told me I should put him on the floor. You said he would be okay. And now he's gone."

At this point, two things happened to Brown-Lohr, one physical, one emotional. At that moment, feeling returned to her. She was burned and suddenly started to feel the enormous pain. But alongside it, something else. "In my mind, I was saying that this was something I would live with for the rest of my life." She was right. All she could find to say to Tsao at the time was: "It was the best thing we could do. It was all we had."

Up front — which was no longer the front, the cockpit having been severed from the rest of the jet — Haynes remembers nothing beyond the landing. He did briefly wake in the cockpit, and remembers being removed from it on his stomach. Then being in the ambulance, and then the emergency room, all in glimpses before passing out.

All four of the crew in the cockpit had survived, though it took time and suffering to rescue them. The cockpit had been compressed to waist height; rescuers couldn't recognise it, so ignored it. It was over half an hour after the crash that rescuers found them, and longer before they figured out a way to get the men out.

By now another element of luck was returning, as the pendulum pitched again. It so happened that the accident occurred just as a shift change was happening at a regional trauma centre and a regional burns centre in Sioux City. Those who were about to go home

stayed, and were ready to treat the injured as soon as they arrived. It also happened that the Iowa Air National Guard was on duty at Sioux Gateway Airport — 285 of them, almost exactly the same number of personnel as there were people on the plane.

"There were a lot of things," Haynes says. "Luck was where we were. We were over relatively flat land, and not over the Pacific or some big city. The weather was nice, and back there are thunderstorms almost every day. It was daylight. The emergency response crew had had a drill a year before on an airplane crashing at Sioux City, on that very same runway. The fact that all the emergency response groups around the state responded. They have a way that everyone is meant to work together, but they didn't pay attention to that: even if they weren't involved in the plan, they went anyway. We had people from 120 miles (more than 190 kilometres) away responding to that crash. There was a tremendous response from the people on the ground. A very important part of it was luck."

## THE FLIGHT ATTENDANTS, SOME BADLY INJURED, CONDUCTED IMPROMPTU TRIAGE AMID THE CORNFIELDS WHILE THEY WAITED FOR RESCUERS

Among the passengers were many examples of heroism. Schemmel left the plane before returning to it after hearing a baby crying; he found her in an overhead baggage locker which, with the plane inverted, was now on the floor. Michael Matz, who would go on to win a silver Olympic medal seven years later, saved several children. The flight attendants themselves, some badly injured, showed incredible fortitude, conducting impromptu triage amid the cornfields, while they waited for rescuers to find them.

Haynes considers himself remarkably unscathed, and was back at work within three months. "I had a cut on my ankle, a bruised rib, a bruised sternum, a lot of cuts and bruises, 92 stitches to my scalp and my left ear was just about cut off. But I didn't break anything. Everyone else in the cockpit had bad injuries," he says, apparently without irony. He doesn't consider 92 stitches in the head to be severe? "I didn't have any," he insists. "Mine was a concussion. My equilibrium was affected and I had to wait until I got that back in balance before I could go back to work."

Brown-Lohr's injuries too could have been far worse. "I have great guardian angels," she says. Five days earlier, she had decided to shift from wearing skirts to trousers. "Because of that, my only burns were around my ankles. They were second- or third-degree burns, where my nylons had melted." Beyond that, not a broken bone. "When you're unconscious, you are really relaxed."

Understanding of post-traumatic stress disorder was embryonic then, but it did exist: the crew received counselling, though not

### TOOLS OF SURVIVAL

Common sense and simple technology — they may not always be so alluring to us, but in an emergency situation they might just save your life.

#### OPTIMISM

DON'T LET THE STORY OF FLIGHT 232 STOP YOU FROM FLYING. CRASHES ARE INCREDIBLY RARE, AND THE US NATIONAL TRANSPORTATION SAFETY BOARD FOUND THAT 95.7 PERCENT OF PEOPLE INVOLVED IN PLANE CRASHES SURVIVE

#### FIGHT THE FEAR

FEAR OF FLYING IS ONE OF THE MOST COMMON FEARS, AND HAS AFFECTED HISTORY'S TOUGHEST FIGURES. MUHAMMAD ALI WAS ONE OF THEM: WHEN THE YOUNG, COCKY BOXER FLEW TO ROME IN 1960, HE DID SO SPORTING A PARACHUTE THAT HE HAD BOUGHT AT AN ARMY SURPLUS STORE



#### BUCKLE UP

HALF OF THE ROOF ON ALOHA AIRLINES FLIGHT 243 DID INDEED RIP OFF, AND PHOTOS OF THE CRIPPLED PLANE ARE SOBERING. SO HOW MANY OF THE 90 PASSENGERS DIED DURING THE EXPLOSIVE DECOMPRESSION? JUST ONE. WHILE MANY WERE INJURED, THEY ALL SURVIVED BECAUSE THEY HAD THEIR SEAT BELTS ON



#### COMMON SENSE

GIVEN THAT YOU ONLY HAVE 90 SECONDS TO ESCAPE A BURNING PLANE BEFORE THE TEMPERATURE CLIMBS TO OVER 1,000 DEGREES CELSIUS, YOU NEED TO BE QUICK. YET PASSENGERS OFTEN TRY TO GRAB THEIR LUGGAGE FIRST. IMAGES OF THE ASIANA AIRLINES FLIGHT 214 CRASH LAST YEAR SHOWED DAZED PASSENGERS WALKING AWAY FROM THE PLANE, CARRYING LUGGAGE



always willingly, as Haynes recalls. "The first thing the psychologist said to me was, we're going to talk about the crash." Haynes subsequently would become a great believer in talking. "I said, no. I just killed 112 people, I don't want to talk about it. He said, we're going to talk about it anyway."

United 232 is odd. It is simultaneously a story of a group of people doing the impossible and saving 184 people, and of a tragedy that killed 112. "Admittedly," Haynes says, "we had done everything that we could do. I still had tremendous feelings of guilt, the guilt of survival, which is a very, very big problem that people are only now beginning to recognise. But there wasn't anything else we could do."

Did he feel that he had killed rather than saved people? "The first thing on your mind is how many died. In the ambulance, I asked Dudley — I was on my stomach with a towel over my head, I couldn't see anything, I was bleeding so bad — and I asked Dudley if everybody made it. And he said no. And I said, oh my God, I killed people. And somebody else in the ambulance said, no you didn't, you saved people. So it's that half-full, half-empty glass," Haynes says today.

"The first thought in my mind was: I was the captain, I was responsible. I didn't do what I was supposed to do, and that's take the airplane from point A to point B safely."

It would later become clear just how unreasonably the odds were stacked against Haynes, Fitch, Records and Dvorak. Soon after the crash, United began putting people into simulators

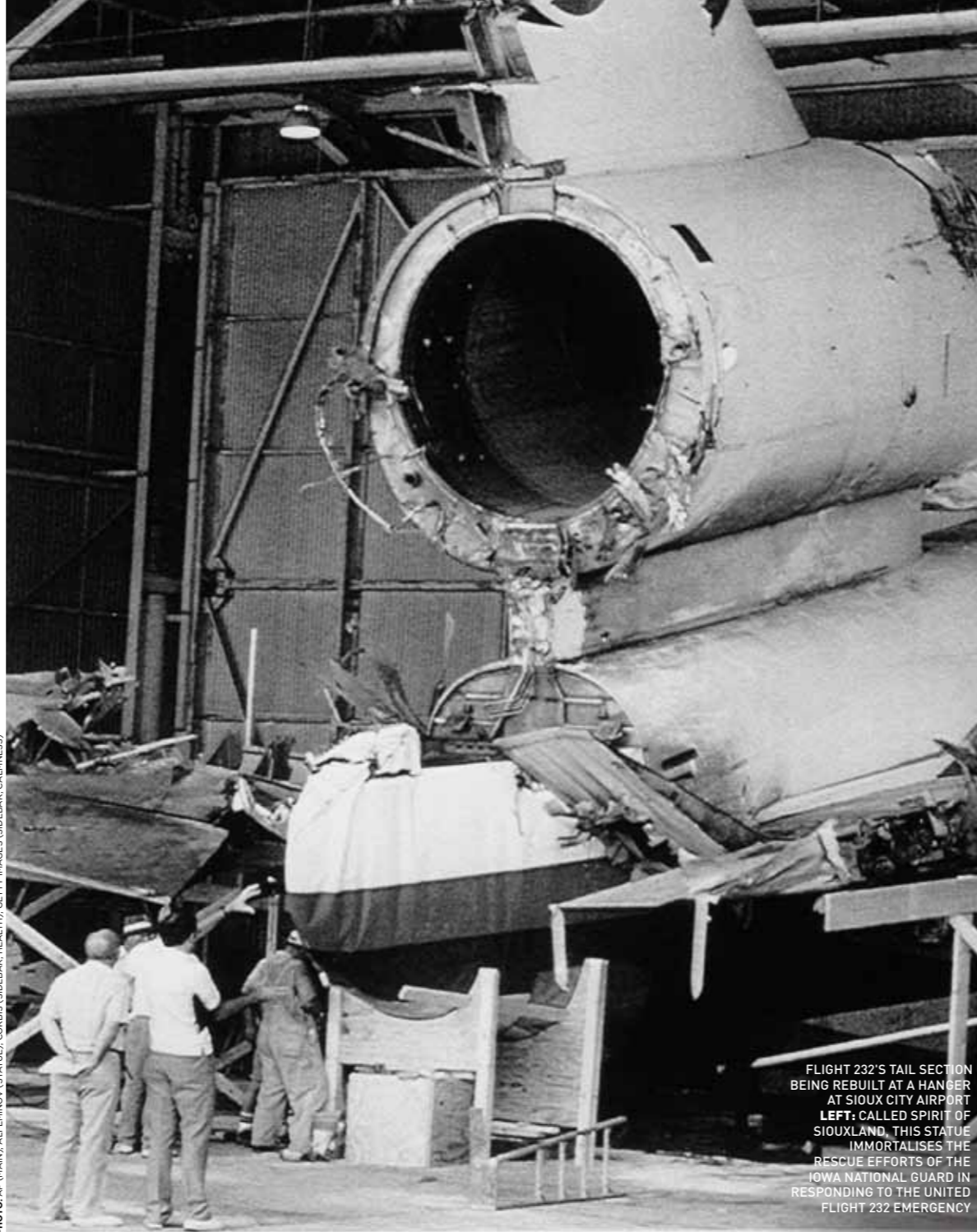
and trying to replicate the exact conditions of United 232. "They said 12 tried it immediately and they didn't come close to the airport," Haynes says. "Then they had 45 others, after they figured out why the plane was rolling. They still never had a successful landing. Whether they got as close as we did, I don't know. But nobody successfully landed it."

In all of the recorded history of aviation, there has still only



been one incident to compare with it. In 2003, the crew of a DHL Express cargo plane, an Airbus A300, succeeded in getting their aircraft back to the ground, after it was hit by a surface-to-air missile in Baghdad — causing a loss of hydraulic flight control systems. It landed following the same techniques as Haynes, Fitch and colleagues had used in 1989.

In Brown-Lohr's case, post-traumatic stress disorder exhibited itself through flashbacks. "People were digging on my street a week or two afterwards. I was getting so nervous — uncharacteristically nervous. Then I realised it was



FLIGHT 232'S TAIL SECTION BEING REBUILT AT A HANGER AT SIOUX CITY AIRPORT  
LEFT: CALLED SPIRIT OF SIOUXLAND, THIS STATUE IMMORTALISES THE RESCUE EFFORTS OF THE IOWA NATIONAL GUARD IN RESPONDING TO THE UNITED FLIGHT 232 EMERGENCY

PHOTO: AP (MAIN); ALI EMINOV (STATUE); CORBIS (SIDE BAR, HEALTH); GETTY IMAGES (SIDE BAR, CALMNESS)

the noise: all that screeching metal noise." The only thing she has never gotten over is turbulence. "That's the one ongoing reaction. That out-of-control feeling. I've got punished for saying 'oh, a little turbulence is fine on a smooth trip'. I'd settle for boredom right now."

Like Haynes, Brown-Lohr was back in the skies in three months. Haynes had to retrain and conduct a few take-offs and landings in the simulators, but was otherwise ready to go. Records and Dvorak were also quickly back in action, although Fitch, the most severely injured, was out for nearly a year. Brown-Lohr resumed flying on Friday 13<sup>th</sup>, having taken a test run as a passenger first. She did not have the experience she expected. "I expected anxiety or fear, but instead it was enormous sadness. I could have just cried my eyes out, that first trip. I went in coach — in economy — and I came back in first class, so I could absorb everything that happened. I was feeling all of the fear that the passengers went through."

Haynes continued flying for two more years, until he reached mandatory retirement. When he took his farewell flight from Denver to Seattle, Records and Dvorak flew with him — as passengers — as well as survivor Schemmel and his wife, plus most of the flight attendants, including Brown-Lohr. When the plane landed, a passenger was taken ill, and the plane was met by ambulances. It seemed somehow fitting.

"I told the crew I loved them," says Brown-Lohr. "But that I won't fly with them anymore, because there is always an emergency."

Haynes and Brown-Lohr have moved on in different ways, though both of them through talking. Not long after the crash, local groups began to ask Haynes to give a speech about the crash. He did, and continued to do so as more requests came in. The talk would later evolve into a sophisticated presentation, that is intended to be motivational for audiences. He has now delivered the speech 1,700 times. The other staple in his life is Little League baseball and high school football, to which he has devoted his time tirelessly for 40 years.

"Oh, it's all therapy," he says of the talks. "Every time you talk it's therapy. People say, how can you see that tape again? I say, I've seen it so many times. Each time I end up hoping it will work out different, but it never does," he adds.

"You have to talk," he says, and leans forward to emphasise the point even further. "You have to talk. Talking about it is part of post-traumatic stress. You can't just lock it up."

Sadly, Haynes has also found himself with plenty more to talk about in the years since United 232. His son, Tony, was killed in an accident in 1996. Haynes' wife died in 1999. Then his only surviving child, Laurie, was diagnosed with aplastic anaemia and required a bone marrow transplant to survive.

Yet within this is a piece of brighter news too: when it became clear that his daughter's insurance would not cover her transplant, Haynes contacted the Air Line Pilots Association, which not only gave money but also brought the situation to public light. Among

the many donors of money were several survivors of United 232. His daughter would go on to get the transplant.

Brown-Lohr has dedicated the rest of her life to trying to change the laws she was compelled to enforce, and that led to the death of a child. It has been about trying to find a positive in an immense negative; redemption after a wrong that was clearly no fault of her own. She has addressed the US Congress, testified on aviation safety commissions, and eventually, and relentlessly, just lobbied the Federal Aviation Administration. She wants every child, no matter how small, to have a seat and a belt on a plane. "A lot of people don't make the connection," she explains. "When a baby is coming to the airport in a car, they have to be in a seat, with a seat belt, no matter whether they are a day or a year old. Coming to an airport in a car doing 60 miles an hour [96 kilometres per hour], they're in a seat belt. Getting on a metal tube doing 500 miles per hour [800 kilometres per hour], they're bouncing them on their lap. If they wouldn't do it on a car, why are they doing it in an airplane? Why are we discriminating against the most vulnerable, little people?"

She notes, "People think their love for their child will hold them. And it won't." She believes that it may take another death before the law is changed. But she won't stop trying: "I feel very strongly that when something bad happens, then something good must come from it," she says. And that, perhaps, is the very essence of United 232. ●

TOOLS OF SURVIVAL

HEALTH

IN AN EVACUATION SCENARIO, YOUR GENDER AND SIZE PLAY A ROLE IN GETTING OUT OF THE PLANE FASTER. A STUDY THAT TIMED THE EXITS OF 2,500 PEOPLE FROM AN AIRPLANE SIMULATOR FOUND THAT YOUNG, SLENDER MEN EXIT THE FASTEST, AND THUS HAVE MORE CHANCE OF SURVIVAL. OLDER WOMEN WITH A LARGER WAIST DID NOT FARE AS WELL



AWARENESS

THIS MIGHT MAKE YOU START PAYING ATTENTION TO THOSE "TIRESOME" IN-FLIGHT SAFETY PRESENTATIONS YOU THINK YOU KNOW SO WELL. THE US FEDERAL AVIATION ADMINISTRATION FOUND THAT KNOWING WHERE THE EXITS ARE AND UNDERSTANDING EMERGENCY PROCEDURES CAN QUICKEN EVACUATION TIMES BY UP TO 40 PERCENT



CALMNESS

A SURVIVAL PSYCHOLOGIST AT THE UNIVERSITY OF LANCASTER IN THE UK ESTIMATES THAT ONLY 10 TO 15 PERCENT OF PASSENGERS ARE CALM AND COLLECTED IN AN AIRPLANE EMERGENCY. AN EQUAL NUMBER ARE UNCONTROLLED AND IRRATIONAL. THE MAJORITY, 75 PERCENT, ARE JUST STUNNED AND BEWILDERED



OXYGEN MASKS

MANY THINK OXYGEN MASKS FULFIL LITTLE PURPOSE ("IF WE'RE CRASHING ANYWAY, WHO CARES IF I CAN BREATHE?") BUT SINCE MANY CRASHES ARE SURVIVABLE, GETTING OXYGEN TO YOUR BRAIN DURING DEPRESSURISATION IS VITAL. IT TAKES JUST SECONDS OF A LACK OF OXYGEN TO MAKE YOU MENTALLY IMPAIRED, AND FAR LESS LIKELY TO BE ABLE TO EVACUATE

