Anatomy of An Air Crash

On July 31st, 1973, a Delta Airlines DC-9 crashed at Logan Airport. Eighty-eight of the 89 people on board died... the worst air disaster in New England history. Chuck Scarborough, a newscaster for Boston's Channel 7 and a commercial pilot, was among the first reporters on the scene.

The worst of it is:
it could happen again tomorrow.

BY CHUCK SCARBOROUGH

Sidney Burrill's alarm went off at 6 on the morning of his death. He was still fumbling with it when his wife, Susan, walked into the bedroom of their Winthrop home and climbed into bed. Susan, who was eight-and-a-half months pregnant, had been restless during the night and had moved to the living room couch to keep from disturbing him.

On his way to the bathroom, Sidney peeked in on his two-year-old son, Scott, who was sleeping soundly. Burrill wouldn't be able to say goodbye to Scott that morning. That was one of the bad things about early flights. But Delta didn't pay him $30,000 a year to fly at his convenience.

At 31, Sidney Burrill wasn't doing badly. He'd come a long way since his childhood in Orono, Maine. His father was an aircraft mechanic in Bangor, and every once in a while, he'd take young Sid in to see those magnificent machines he worked on: the Ford Tri-motors and the DC-3s, and later the Super Connies and Jets. Sid started taking flying lessons at 16. He joined the Air National Guard right out of high school, then enrolled in an aircraft mechanic course at East Coast Aero Tech in Bedford, Massachusetts. He graduated in 1963, went to work as a mechanic and continued to take flying lessons, earning his commercial and instrument ratings. In 1967, that Childhood dream of his came true. Northeast Airlines accepted him for airline pilot training.

Now, with 6,994 flight hours under his belt, Burrill was beginning to explain the mysteries of flight to *his* son. He finished breakfast, put on the jacket of his trim black flight officer's uniform, walked to his bedroom, stuck his head inside the door, and whispered the last words Susan Burrill would ever hear from her husband, "See you tomorrow." Sid left for Logan Airport at 6:25.

John Striel got up at 5:30. As usual, his wife, Virginia, was fixing breakfast and his 12-year-old son, John the third, was still sleeping. It was a dismal day. After 23 years of flying in and out of Logan, Striel knew the problems New England weather could cause an airline. Delta Crew Scheduling would be seething with activity as it tried to cope with cancellations, diversions and delays.

At age 49, John Striel had an impressive flying record. He started flying the hard way: combat missions for the Army Air Corps in Europe during World War Two. He won his wings at the age of 18, and that made him the youngest pilot the Air Corps had. He was also one of the best, winning the Distinguished Flying Cross and the Air Medal with four Oak Leaf Clusters for his skills behind the controls of a B-24 Liberator over Germany. When the war ended, John stayed on, sharpening his aviator's skills and love for flight. When the Russians blockaded Berlin in 1948, John piloted one of the ships in the Berlin Airlift. In 1949 he decided to leave the service. Northeast hired him in 1950, and the fierce loyalties he developed for the Air Corps gradually shifted to his civilian employer.

Northeast began to lose money in the '60s, and Striel began to worry. He worried more when Storer Broadcasting Company bought the airline in '65. How could non-aviators possibly run an airline—especially one that was in trouble financially? Storer couldn't cope with the problems that were draining Northeast's assets. The losses mounted, and by 1970 were soaking up most of Storer's broadcasting profits. Storer wanted out. Delta wanted Northeast's routes and equipment. After more than a year of legal maneuvering, the merger was finally approved on August 1st, 1972.

For many employees, it was not easy to watch their company flounder and be absorbed by the competition. They couldn't escape some feeling of guilt . . . and of resentment. Now they felt a little like stepchildren, and not without good reason.

Delta has always been a believer in *esprit de corps*. The airline regularly produces industry-leading statistics in profit, punctuality, passenger load and safety, and uses these figures skillfully to convince its employees that they are better than the competition’s employees. The drill has produced a lot of gung-ho workers. It has also produced a corporate superiority complex that is painfully obvious at times. The old Northeast crews privately complain that the snubbing didn't stop with the signing of the merger.

Captain John Striel kissed his wife Virginia good-bye, left his Lynnfield home, and headed for Logan to meet Sidney Burrill, his co-pilot. He liked Sid. They'd flown together all month, and a comfortable bond of mutual respect had grown between

them. The two met in Delta's crew lounge at about 6:35. They had just over four hours to live.

Flight attendants Janice L. Wilson, Patricia H. Humphreys and Ann L. Moore were all original Delta stock from Houston. All stewardess-trim. Conservative hairstyles. Neat make-up. Clean uniforms. Regulation undergarments. They usually passed personal appearance checks by their supervisors with flying colors.

The three of them boarded the DC-9 and began preparing the cabin for boarding. While Captain Striel checked the weather and took care of the usual paperwork, First Officer Burrill conducted the routine pre-flight inspection of the ship: fuel, brakes, tires, gear retraction links, control hinges and surfaces, navigation lights....

At 7:15 a.m., Striel pronounced the plane healthy. The passengers began to board for the first leg of a routine "turn-around." Flight 524 was scheduled to fly to Burlington, Vermont, turn around, and fly back to Boston. Two hours later, the crew would take the plane to Washington, spend the night there, then return to Boston in the morning.

John Striel and Sidney Burrill had extra company in the cockpit on this trip, 52-year-old Joseph E. Burrell (whose last name was coincidentally similar to the pilot's) who was authorized by Delta to ride in the cockpit jump seat as an observer. Burrell was a veteran pilot with 17,000 hours of flight time, whose career was devastated in 1967 when a flight surgeon discovered he had Parkinson's disease. Burrell was placed on medical leave by his employer, Northeast Airlines, and was never expected to fly again. But flying was all he knew and lived for, so Burrell fought the disease for six years with drugs, cryosurgery and exercise, and he finally beat it. Now Delta was training Burrell to fly DC-9s.

Delta 524 took off from Boston at 7:35 and rolled up to the gate in Burlington exactly one hour later, at 8:35. Delta 524 then became Delta 723 for the return trip to Boston. The cabin was cleaned and serviced, and Burrill conducted another pre-flight inspection of the ship. Then the passengers boarded.

Most of them were from the Burlington area. Robert A. Metz and two of his partners in an architectural firm were going to a business meeting in Boston. But for Metz, it was more than a business trip because he had brought his 11-year-old daughter, Lisa, along to do some shopping.

Twenty-three-year-old Mary Gosselin was going to Boston for the company she worked for. She had returned from her honeymoon just two days earlier.

Eleven-year-old Scott Race was in high spirits when he got on the plane. He had finally talked his mother, Shirley, into taking him to a Red Sox game in Boston. He

also talked his grandmother, Bertha Baker, into making the trip. The Sox were playing the Yankees at Fenway Tuesday night.

Sixty-five-year-old Marion Smith and two of her friends were bound for a doll-collectors convention in Louisville, Kentucky.

Thirty-five-year-old Richard Theriault kissed his wife, Brenda, his nine-year-old daughter, Suzette, and his seven-year-old son, Richard, good-bye and joined four of his fellow IBM workers on a business trip to Boston.

Twenty-eight-year-old George Lafontaine's two-week leave was over. He was returning to Jacksonville, Florida, where he was a first-class metalsmith in the Navy.

Twenty-year-old Air Force Sergeant Leopold Chouinard was on his way back to Alaska. He was ending his first trip home in a year and ending it reluctantly. The night before he left, he had finally gotten up enough nerve to ask 19-year-old Brenda Newton to marry him. She accepted.

In all, 52 people boarded the plane in Burlington.

As the passengers were boarding, Captain Striel got a message from the gate agent he'd half expected since he took that first look at the weather that morning. Because of the weather, Delta had cancelled flight 751's scheduled stop in Manchester, New Hampshire, leaving 47 passengers stranded. So, the company ordered Striel to make an unscheduled stop in Manchester on his way from Burlington to Boston.

Striel called ground control on the aircraft radio.

"Burlington ground, this is Delta 723. We're gonna IFR [Instrument Flight Rules] routing to Manchester instead of direct to Boston,"

"Roger 723, Stand by."

"Delta 723, are you ready to copy?"

"723, roger, go ahead."

Striel copied his Air Traffic Control clearance and routinely repeated it to Burlington ground for verification, taxied to the runway, and switched his radio to the tower frequency.

"Burlington tower, this is Delta 723 ready for takeoff."

"Delta 723 cleared for takeoff."

Striel flew the first leg and, as is customary, let his co-pilot fly the ship back to Boston. Burrill eased the throttles forward and lined the DC-9 up with the runway

center line, then applied full power. Striel put his hands behind the throttle levers in the center console to make doubly sure full power stayed applied as those two big Pratt & Whitney turbo fans revved to maximum thrust. He watched the fuel flow meters and the RPM percent counters and the temperature gauges. Burrill watched the runway. The plane accelerated quickly. Engines normal, Striel switched his gaze to the airspeed indicator. As the needle passed through 120 miles per hour he barked, "V-1."

Burrill's eyes were glued to the runway. When Burrill heard "V-1" he knew it was his last chance to continue the takeoff or abort.

Neither man saw a problem on this one, so Striel announced, "We're go for takeoff."

The plane approached V-2—the speed at which it will fly on one engine—and Burrill began pulling smoothly back on his control yoke . . . raising the elevator surface on the tail into the slipstream . . . causing the tail to drop, the nose to rise, the wings to bite air and his ship to fly. The ground disappeared quickly into the haze.

"Delta 723, contact departure control on 124-point-2. Good day."

It was 9:22 a.m.

At 9:44, Burrill entered the approach course for Manchester and performed a flawless letdown and landing. Fifteen of the 47 passengers waiting for the flight had grown impatient and rented cars to travel the 50 miles to Boston. Thirty-two remained to board flight 723.

A nervous 25-year-old Judy Smith was on her way to New York. Five months earlier she had been seriously injured in a car crash in North Carolina. Her boyfriend was killed. She had just recovered from her injuries and from the plastic surgery performed on her face.

Twenty-three-year-old Sandy Watts also was off to New York. She was a VISTA volunteer and was traveling with three others to escort 118 Fresh Air youngsters from New York by bus. She was substituting for Mrs. Shirley Gagnon, the Fresh Air Fund organizer in Manchester, who was supposed to make the trip but didn't want to go because she "hates flying."

New Hampshire Assistant Attorney General Robert Moran and his wife, Patricia, were flying to New York to have lunch with friends.

Interstate Commerce Commission member Chester Wiggin was returning to his home in Virginia after a vacation.

Wilber Molin and his wife, Jeanne, both 44, decided to leave their Country Craftsman Shop in Antrim to take a vacation in Florida. Business was slow.

Fifty-one-year-old Jeannette Crowley looked a bit despondent as she boarded the plane. She was a nurse, and understood life and death well, but the trip was a difficult one. She was going to Ohio to comfort her mother, whose second husband had just died.

Laszlo Hadik, president of a Washington consulting firm, had fled Hungary with other members of his family 25 years ago. He was 16 years old, old enough to share the horror his family felt as the communists took their possessions and their title, and the land they loved and belonged to. In Hadik's briefcase he was carrying papers marked, STRATEGIC PLANS FOR THE NUCLEAR DEFENSE OF NATO AND THE UNITED STATES, which he was reviewing for the United States government.

Again, Striel called ground control for his clearance to Boston and for taxi instructions. He copied the clearance and taxied to the runway. Then more bad news. Boston was having trouble getting flights in because of the weather and 723 was ordered to hold on the ground in Manchester. Even though Logan was just 15 minutes away, it looked like a 30-minute wait for takeoff. The simple milk run had turned into a real headache. Striel and Burrill began getting a little exasperated. First the extra stop in Manchester was thrown at them. Then they were told to hold on the ground just 50 miles from home, burning fuel and going nowhere.

Striel announced the delay to the passengers.

Back in the cabin, the stewardesses started serving beverages, hoping to make the delay at least a little more bearable.

But a cup of coffee wouldn't solve Charles Mealy's problem. He'd been trying to get out of Manchester all morning to go to a business meeting in New York. Now he'd never make it. He decided to go home. Mealy approached a stewardess with his request to be let off the plane. She told him it couldn't be done. When he insisted, she told him he'd have to see the captain. He hesitated a moment and then headed for the cockpit.

Striel's day seemed to grow increasingly complicated. Now an irate passenger. Mealy assured Striel that he wasn't angry and explained he wanted to get off because he was going to miss his business meeting which had been the only reason he took this flight. He repeated his request to get off the plane.

Finally, Striel decided to let him off.

"Sir, if you'll go back to your seat I'll taxi back to the ramp for you."

Back at the gate, Striel again announced to his passengers that there'd be a delay of at least 30 minutes and offered to let anyone off the plane who wanted to get off. Charles Mealy was the only one who left. Striel, Burrill and 86 others in their care had one hour to live.

Delta 723 lifted off the runway at Manchester at 10:50 a.m. Burrill was still doing the flying. He ordered the landing gear retracted. Striel moved the big gear handle with a plastic wheel on it to the UP position, then gave his final radio call to Manchester tower.

"An' we'll see you later, sir."

"Roger, good day."

Striel switched over to the frequency for Boston Approach Control. "An' Boston Approach, this is Delta seven two three, just off Manchester climbing out of 2,000 to Lawrence."

Veteran air traffic controller Charles M. Taylor heard the radio call. Automatically he looked for Delta 723's blip on his radar scope and noted the time, 10:51:22, as he replied.

"723 roger, cleared to Lawrence, no delay, plan vectors ILS four right. The Boston altimeter is three zero one one. Weather is partial obscuration, estimated ceiling 400 feet overcast, visibility a mile-and-a-half and fog."

"Very good sir. We'll, uh, check with ya 4,000."

Aircraft altimeters are nothing more than barometers. They figure height by measuring atmospheric pressure, which decreases steadily the higher you go. Atmospheric pressure is also changed by weather conditions, so to be accurate, an altimeter must take into account the barometric pressure at the field of intended landing. When the pilot gets the altimeter setting from a controller, he's supposed to dial it into his altimeter.

At 10:54, Striel contacted Approach Control again.

"Ah, Delta 723 approaching Lawrence."

"Seven two three roger, fly heading now of 180, radar vectors for ILS four right."

"One eight zero."

"723, you level at 4,000 now?"

"That's affirm, 4,000."

Striel decided to leave the seat belt sign on throughout the short hop to Boston. At 10:55, he mentioned that fact to Burrill. "I'll leave this on to help the girls." The girls had 13 minutes and five seconds to live.

Striel began his descent and landing checklist. He decided to let Joe Burrell, the jump-seat observer, read the list aloud: "Flight instruments, altitude—test, set and cross-checked?"

Delta's DC-9s have three altimeters: two barometric types and one radio altimeter. The radio altimeter is used as a backup only, but can be set to sound an alert at any altitude. At this point in the flight, it is supposed to be set to sound off at 2,500 feet. The barometric altimeters are to be checked for proper settings and compared against each other.

Striel confirmed having done the procedure by replying, "Test set and cross-checked."

Burrell and Striel had completed the descent check when approach controller Charles Taylor called again, "Delta 723, descend to 3,000, over."

"Okay sir, leaving four for three, 723."

"Delta 723, fly heading 220."

"Two two zero, 723."

The cockpit interphone light came on. Striel turned to Burrell and said, "You want to answer the girl? She just rang."

"Right, I got the phone."

It was Patricia Humphreys. She wanted to know what to tell her passengers who were asking when they'd land.

"Uh, are we going to be able to go right in, or are we going to be doing some circling around and all?"

"We've got a radar vector to the final approach course now."

"To the where?"

"Final approach course. We're being radar vectored to final."

"Okay, good, thank you. Bye."

Burrell hung up the phone at 10:58:37. He and Patricia and all but one of her passengers had nine minutes and 28 seconds to live.

While Burrill flew the plane, Striel and Burrell continued the approach checklist, Burrell reading and Striel confirming.

"Check the radio altimeter, needs a Decision Height."

Striel replied, "The DH for runway four right is, ah . . ."

"Two hundred feet?"

"Yeah. All right, let's get the approach out of the way."

Striel, Burrill and Burrell discussed the weather, the merits of the DC-9 and women pilots for a few minutes. At 11:03, Boston Approach contacted 723 with a series of heading changes, guiding the ship toward the final approach course. The last heading was given at 11:04:30, three minutes and 35 seconds before impact.

"And Delta seven two three, fly a heading of zero eight zero now, intercept the localizer course and fly it inbound, over."

"Okay, zero eight zero for intercept."

Delta 723 was about four miles west of the localizer, a narrow radar beam sent straight out from the center line of the runway. By intercepting and tracking that beam, the aircraft will fly directly over the runway. Ordinarily, controller Taylor would have stayed with Delta 723 until it intercepted the localizer, given the ship a position report and told the pilot to contact the control tower. But Taylor had a problem. Delta 623 had just landed on four right. Eastern 572 was about a mile from touchdown. Eastern 1020 had just reported in the holding pattern at 8,000 feet for landing. American 400 was inbound to the holding pattern, and Allegheny 666 was entering the holding pattern and reported at 8,000 feet.

It had just dawned on Taylor that he had two aircraft at the same altitude in the same holding pattern. He mentally evaluated his priorities. Eastern 572 was out of his hands. Delta 723 could fly the intercept and the whole approach without any help from him if necessary. But if he didn't resolve this conflict at 8,000 feet, he'd have a mid-air collision on his hands between Eastern 1020 and Allegheny 666.

Taylor checked his data to see which aircraft was at the wrong altitude. Allegheny 666, Triple-six was assigned 9,000 feet. He got on the radio.

"Allegheny triple-six, Boston Approach."

No reply.

"Allegheny triple-six, Boston Approach."

No reply.

"Allegheny triple-six, Boston Approach, one two three, three two one. Do you read?"

By now, Delta 723 was closing in on the localizer beam that it was to track to the runway. Striel, scanning the flight instruments with the wisdom of 30 years of flying, saw a vertical needle come out of the right side of a gauge and begin to move toward the center. "Localizer's alive."

Burrill responded, turning the ship onto the localizer heading of 35 degrees, and asked "We can go down to 2,000 feet now, can't we?" Striel had not officially been cleared yet by Approach Control, to fly the Instrument Landing System. He called Taylor on the radio.

"Is 723 cleared for the ILS?"

A harried Taylor replied quickly, "Yes, 723 is cleared for the ILS. Yes." It was 11:05:41. 723 was seven miles from the end of the runway. Two minutes and 24 seconds from impact.

Taylor was still struggling with his high priority conflict at 8,000 feet. Still no reply from Allegheny triple six. He decided to get Eastern 1020 the hell out of the holding pattern.

"Eastern 1020, Boston Approach."

"1020." Taylor breathed a sigh of relief and directed 1020 to intercept the localizer.

When Striel got clearance to fly the Instrument Landing System, he got busy with the pre-landing routine. His ship was on the localizer, and had intercepted the glide slope, another radio beam that angles up from the runway at 3.03 degrees to guide the plane's descent to touchdown. The jet was approaching the outer marker, a vertical radio beam that shoots straight up five miles from the runway and crosses the glide slope at an altitude of 1813 feet. When the aircraft crosses the marker beam, a blue light lights on the instrument panel, letting the pilot know he's five miles from touchdown. Other instruments sense whether the plane is to the right or left of the localizer and above or below the glide slope. That information is fed into a computer on the ship that controls an instrument called the "Flight Director." The Flight Director tells the pilot exactly which way to go—up, down, right, left and exactly what angle of bank and pitch to use to stay on the approach path.

Burrill watched his Flight Director and did what it told him. Striel ordered the landing gear down and moved the gear handle to the DOWN position. The gear doors opened with a CLUNK that never fails to startle passengers, followed by that worrisome roaring sound as the three wheels drop into the wind, a final round of CLUNKS, and three green lights appeared in the cockpit.

The plane crossed the outer marker at 11:06:14, one minute and 51 seconds before impact. Striel lit the No Smoking sign. That was Stewardess Humphreys' cue for the landing announcement.

"Ladies and gentlemen, we will be landing in Boston in just a few minutes. Please re-check to make sure your seat belts are securely fastened and no further smoking until you're inside the terminal building. May we also remind you that all seat backs and tray tables must be in their original upright position for landing and taxiing. Thank you."

Striel armed the ground spoilers and moved the flap handle into the detent. The big flaps on the trailing edges of the wings angled downward.

Striel glanced at his Flight Director and noticed the ship was above the glide slope.

"Get on it, Joe, ah, Sid."

Burrill glanced at his vertical speed indicator. "I'm getting down at a thousand [feet a minute]."

"Leave it below one [thousand]."

Burrill looked back at his Flight Director. Trouble. The command bar that should tell him how to stay on the localizer didn't look right.

"This [goddamn] command bar shows..."

Striel interrupted his co-pilot. He saw it too.

"Yeah, that doesn't show much."

It was 11:07:14. Approach controller Taylor, by request from the tower, cleared Delta 723 to land.

"723 cleared to land. Contact tower one-nineteen-one."

Striel answered, "723," and glanced at the airspeed indicator. 170 miles an hour. "Goin' like a [bat outa hell.]"

Joe Burrell said, "Oh My God." It was 11:07:21. Delta 723 was two miles from Logan. 44 seconds from impact.

Striel glanced out the jet's windshield. Aside from monitoring the altimeters and the approach while Burrill flew it, his job was to find the runway visually. Logan's runway four right is built on fill in Boston Harbor. It's 10,000 feet long, the longest on the field, but the first 2,500 feet are out of bounds for Instrument Landings. It has

this "displaced threshold" to keep landing aircraft higher over the harbor so they won't hit ocean vessels passing the end of the runway.

A pier juts into the harbor from the end of the runway. It bristles with approach lights: bright spotlights with a string of high intensity strobes down the middle that flash sequentially down the pier, down the paved surface to the displaced threshold. It was these lights that Striel was looking for through the fog, but the fog was so thick it was condensing on the jet's windshield, forming droplets and streaking horizontally in the slipstream. Striel turned on the wipers. The visibility was still zero. He had to spot those lights before the plane reached an altitude of 200 feet above the ground. That is the Decision Height. No runway by then, no landing. The pilot must execute a "missed approach," apply full power and climb out on a pre-determined course. He may then run the ILS gauntlet again or fly on to another airport.

But for the moment, Striel was more concerned with the trouble they were apparently having with the Flight Director. The plane had strayed left of the localizer. Burrill turned right. Striel said, "Okay, your localizer's startin' to come back in now."

"Okay. Set my power up for me if I need it."

Striel responded, "Okay. Just fly the airplane."

At 25 seconds before impact, Striel decided the Flight Director was too unreliable to use. "Sid, you better go to raw data. I don't trust that thing."

At 22 seconds before impact, Striel called the tower.

"And Boston Tower, Delta seven two three final."

"You're cleared to land four right. Traffic's clearin' at the end. The RVR (Runway Visual Range or visibility) shows more than 6,000 feet. A fog bank is movin' in. It's pretty heavy across the approach end."

"Seven two three." That was Striel's last transmission. He had 13 seconds to live.

Striel scanned the approach instruments again and saw that his ship still wasn't exactly on the approach path.

"Let's get back on course if ya can."

"I just gotta get this back."

Joseph Burrell, the jump-seat rider, was the only one who saw the end coming. One-half second before impact, at 11:08:05, he screamed.

The fog was so thick at 11:08 that Jeffrey MacDonald, the local controller in Logan's tower, could hardly see the runway in front of him, much less the approach end. Eastern 1020 was beginning its approach and Eastern 572 was still trying to taxi in after landing.

"Boston tower, this is Eastern 1020 with ya ten miles out."

"Roger, 1020, continue. 572, you on?"

"572 is holding short of runway 15."

"Okay, I don't have you in sight 572 ... Oh, disregard that."

MacDonald was trying to contact Delta 723.

"Delta 723, you on?"

No answer.

"Eastern 572 cross the short one and hold short of the long one and remain with me."

"All right, sir."

"Boston tower, Eastern 1020 is passing the marker."

"1020 continue."

"Roger."

Now MacDonald had a problem. He couldn't clear the Eastern flight to land because he still wasn't sure Delta 723 was off the runway. This is where a controller's job gets hairy. He can't see the runway. Airliners making approaches at three-minute intervals. And a guy down there somewhere decides to clam up. MacDonald keyed his mic, "Delta 723, you on the ground?"

No answer.

"723 Tower."

No answer.

Now MacDonald was really concerned. The Eastern jet was only a few miles out. Maybe 723 had switched over to Ground Control's frequency. He shouted across the tower to the ground controller, "Ground, you hear from that Delta flight?"

"Yeah, it's at the gate." Later both the ground controller and MacDonald were unable to recall his exact words. MacDonald thought he heard "Delta 723," but the ground controller would later testify that he was referring to Delta 623 which he had directed to the gate moments earlier.

"Okay, 1020's cleared to land four right!"

"Boston tower, this is American 400 by Milton."

"400 continue."

"1020's goin' around."

Eastern 1020 had decided not to land. The pilot later testified that he reached his decision height and couldn't see a thing, so he immediately executed a missed approach.

"1020 roger. Climb straight ahead on runway heading. Climb and maintain 3,000."

"American 400 cleared to land."

"And American 400's goin' around." Again, the pilot reached decision height without being able to see the runway. Both the Eastern and American captains elected to divert to Providence.

It was 11:13 and nobody in the tower knew what had happened to Delta 723.

But Geoffrey Keating knew. That knowledge consumed his whole being as he tore away from the edge of runway four right, white-knuckled behind the wheel of a pickup truck, racing along the dike road toward the airport fire station, teeth clenched, his face slack and fallen. Moments earlier, Keating and two other construction workers busy on the land fill area near four right saw a flash of fire through the fog and heard the rumble of distant thunder. They stood frozen for a moment, struggling with the same unthinkable thought, trying frantically to find a more sane explanation for what they had just seen. Firemen practicing their craft? Lightning? But the dreadful reality of that flash of fire and distant rumble defied escape, and without speaking, the three men bolted for the truck and drove toward the end of runway four right. As soon as Keating got close enough to confirm his fears, he stopped the truck, let his two companions off, turned around and pressed the accelerator to the floorboard.

Airport Fire Chief Charles Arena was startled by the pounding on his office window and the sight of a desperate man. But Geoff Keating's message startled him even more.

"Four right!" Keating shouted through the window gesturing wildly. "THERE'S A PLANE DOWN ON FOUR RIGHT!"

Arena's fire trucks roared out of the fire station at 11:14, and moments later, as Arena neared the end of the runway, he picked up the microphone on his two-way radio, keyed it, and activated Logan's disaster plan.

The fact that Logan had a working disaster plan at all can be credited to the persistence of Hubert "Butch" Gainer, the airport manager. The tall, lean, white-haired Gainer was an Air Force fighter pilot for 20 years and he brought his military discipline with him when he took command of Logan two years ago. On Air Force bases disasters are planned for and rehearsed for regularly, so Gainer was flabbergasted when he discovered no such precautions in civil aviation. He was even more flabbergasted when he discovered why no disaster exercises were conducted at Logan. The airlines did not want them. Their executives, who spend millions of dollars every year selling flying safety to the public, blenched at the thought.

So, when Gainer proposed air force style mock-disaster exercises complete with a “disabled” plane on a runway, “victims” scattered about, fire trucks roaring around with lights flashing and sirens blaring, ambulances and doctors pouring in from Boston hospitals and evacuating “casualties” back to emergency rooms through harbor tunnels closed to normal passenger traffic, he ran into a stone wall of opposition. Butch Gainer didn’t survive two decades behind the controls of combat aircraft by giving up easily. It took a while, but somehow he managed to convince the airlines that they’d have to swallow two disaster exercises a year.

The first was held in April of 1972, and according to Gainer’s employers, the Massachusetts Port Authority, no other civilian airport in the country has such extensive disaster exercises. So, when Fire Chief Arena sounded the alarm, the emergency facilities of an entire city were mobilized.

Richie Suskin noticed the sudden flurry of activity on the police radios in his news cruiser. He called the Channel 7 newsroom on his two-way and asked what was going on.

“We think there’s been a plane crash at Logan, Richie.”

A tingle of fear ran through the 30-year-old news photographer. His wife, Miki, is a stewardess for American.

“What airline?” Richie asked as he gunned his white Ford away from Government Center toward the entrance of the Callahan Tunnel.

“Delta, we think.”

Richie breathed a sigh of relief and got down to business. He’d been a news film “stringer” for nine years before going to work full-time at Channel 7 in 1969. As a stringer, Richie was a lone, independent operator, cruising the city late at night in his own car listening to 15 emergency frequencies, trying to beat the authorities and other stringers to fires, shootouts, accidents and murders. Using his own equipment, Richie would film each incident and sell his film to the local television stations the

next day for $25 a story. In those nine years of stringing, Richie learned how to get into disaster scenes that were sealed off by police.

As he approached the Callahan Tunnel, he fell in behind a police cruiser from District 1, turned on his headlights, and tailgated his way through the closed tunnel and past two state police roadblocks at the airport. The police cruiser stopped at the airport fire station, but Richie didn't. He fell in behind a fire truck and found himself hitting a hundred miles an hour down a taxiway, in thick fog.

Suddenly he was there, in the middle of it. He grabbed his camera, turned it on, and stepped out of his car into a strange surrealistic dream. Through his viewfinder, he saw smoldering wreckage everywhere, sitting in a sea of white foam, surrounded by fog and silence. Then he saw the bodies. Twisted broken bodies of men, women and children strapped in twisted, broken seats scattered all over the runway, limbs protruding crazily, faces broken and contorted. Richie began to walk and the only sound he heard was the distant "plop, plop" of his feet in the foam. He was operating on instinct now, sidestepping pieces of flesh and severed limbs, wandering with his camera rolling.

Finally, in the rubble, he saw something that looked like an airplane. The landing gear. And the tail section. But the rest was gone. Disintegrated. And the path of destruction led from a hole in the seawall . . . a seawall that Delta 723 should have cleared by 200 feet . . . could have cleared by ten feet and landed. But now there was nothing but wreckage and silence and fog and bewildered rescue people.

"Help me. Please help me." The cry had come from a pile of blackened rubble. There, sitting atop a naked, charred body was the normal head of a young man saying, "Help me. Please help me."

Twenty-year-old Leopold Chouinard is the only one of the 89 people on Delta 723 who is alive. Later, with third degree burns over 80 percent of his body, his legs will be amputated to reduce the area of possible infection. And later, he will tell investigators how it was that his head and one arm escaped the flames, and that story will rob them of the one comforting thought they drew from the scene of desperate carnage. They had thought that the crash happened so fast, at least those who perished never knew what hit them. That the end came with merciful quickness.

But Chouinard will tell them how, after the crash, and just before the fire, the girl sitting next to him unbuckled his seat belt and started to shove him out an emergency escape hatch. He got his head and one arm out.

So there was at least one other person alive in the cabin of the DC-9 who escaped death by impact but could not escape the searing heat from burning jet fuel.

Richie saw another body, crumpled and broken near a torn black jacket with four gold stripes on the sleeve. Suddenly, the enormity of it all hit him. He reeled back to his car, picked up the two-way, and called the newsroom. "It's bad. I think I'm gonna get sick for the first time. I think I've just seen the pilot."

There lay John Striel, war hero, skilled pilot, husband, father, in the wreckage of his final flight, unaware until the sea wall crashed through his windshield that his troubles were terminal. The nose of the DC-9 slammed into the seawall at about 150 miles per hour five feet below its top, 165 feet to the right of the runway centerline. The ship was in a shallow left bank, with the left wing tip just skimming the surface of the harbor's water.

The wreckage catapulted upward, tearing a chunk out of the top of the seawall nine feet wide and a foot-and-a-half deep, then scattered over an area 250 feet wide and 790 feet long. A small section of the fuselage stopped on the runway centerline at the threshold lights.

An investigation by the National Transportation Safety Board found no evidence of structural or engine failure or fire prior to the crash. The flight data recorder and cockpit voice recorder bore out the conclusion that the ship was functioning normally until it hit.

During the final seconds of flight, the cockpit of Delta 723 was filled with distractions. The ship was off course. The primary landing instrument, the Flight Director, was suspect. The control tower was giving runway conditions. Striel was expecting to break out of an overcast at 400 feet with more than a mile visibility. Barring the unlikely possibility that all three cockpit altimeters suffered identical malfunctions during the last couple of minutes, three competent, respected, experienced pilots violated the life and death rule they lived by. None of them noticed the airplane dip through Decision Height.

That is not a unique problem. Late last year an Eastern L-1011 jumbo jet on approach to Miami experienced a problem with a landing gear indicator light. It didn't light. Four pilots in the cockpit were so distracted trying to figure out if the gear really was not down—or if the bulb was just burned out—that they didn't notice the altimeters unwinding. Despite the fact that the jet was packed with the latest and finest instruments and control systems, it flew into the ground and crashed. The little distraction that led to that tragedy turned out to be a burned-out 20¢ bulb.

Officially, the accident was chalked up to pilot error. But it and the crash of Delta 723 point up a weakness in the Instrument Landing System used by civil aircraft. The procedure requires the flight crew to make foul weather landings by reference to cockpit instruments only, with no help and no meaningful observation from the

ground. Even if controllers close an airport because of weather, the final decision on landing rests with the pilot.

The system fails to take into account the effects of stress and emotion on judgment. No matter how many safety gadgets are packed into a cockpit, as long as human beings are flying the plane there will be a chance that a random set of circumstances will defeat them all.

The reconstructed flight path of Delta 723 shows that the plane was never firmly established on the approach path. It started high and to the left, strayed erratically, and ended low and to the right. Both Striel and Burrill knew the approach was questionable. Striel was described by his associates as conservative, by the book, a real pro. Burrill was described as sensible and capable. By all the rules they flew by, they should have gotten out of there and tried it again.

But they didn't. It might have been some combination of frustration, competitive pressures, stress, distraction, over-familiarity with the airport, faulty instruments.

Whatever the causes, had that flight been observed by someone outside the cockpit environment, someone unaffected by the cockpit problems, the crash could have been prevented.

The sad fact is that hardware for such observation is available. The military uses a foul weather landing system called Ground Controlled Approach (GCA), in which precision radar monitors the position and altitude of the landing aircraft so accurately that deviations of only five feet from the glide slope can be detected. The controller on the ground talks the pilot down, telling him if he's above, below, right or left of the approach path.

Most pilots, given a choice between the two systems, will choose the civilian ILS. They argue quite reasonably that the pilot is more inclined to be precise since the ground controller doesn't die if he makes a mistake.

So, the best system would appear to be the ILS now used by civil aviation combined with a low-budget GCA unit as a backup to monitor the approach. Had this system been in operation on July 31st, 1973, at Logan Airport, Delta 723 could have been warned of its erratic approach and, toward the end, that it was dangerously below the glide slope.

GCA radar also shows aircraft rolling out on the runway after landing, and this could have prevented another big mistake at Logan. The tower, unaware that a plane had crashed and scattered debris on the runway, cleared two more flights to land. With only the slightest change of circumstances, there could have been a three-plane pile-up.

The weaknesses in the system may be frightening, but they are, to a large extent, curable. The problem according to people in the Federal Aviation Administration and the National Transportation Safety Board is money. They will tell you the present system is safe, and the cost of installing GCA equipment far outweighs the tiny extra margin of safety it affords. To them, one major crash every 13 years at Logan is a good statistic. It doesn't justify spending money on additional safety control.

Try to explain the cost/benefit rejection of an approach monitoring system to the wife of Delta 723's co-pilot, the mother of the accident's 90th victim. Twenty-nine-year-old Susan Burrill went into labor nine days after her husband was killed.

Her baby was stillborn.

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