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AIRDROP IN NEVADA

IT WAS 2:00 A.M., Pacific Standard Time, at a secret Air Force staging base somewhere in the western United States. The crew of a specially-equipped B-36 had just finished an extra-early breakfast of sandwiches and coffee.

An undisclosed number of bleak miles away, at a place named simply Control Point, not far from Camp Mercury, Nevada, a control-room crew was taking a brief break for hamburgers and cokes.

Both crews belonged to the same team. Both were up at that hour of the night for the same purpose. They were preparing an early-morning air drop — the seventeenth in Nevada, and the first nuclear detonation of Operation Teapot, the Atomic Energy Commission's 1955 continental test series.

The initial blast of the series was to have been a tower shot, set off close to the ground. But unfavorable weather conditions had changed the plans of test manager James C. Reeves. Now it was to be an airdrop. The B-36 crew — part of the 4925th Test Group (Atomic), commanded by Colonel Harry L. Donicht who, representing the Air Force Special Weapons Center, would also be commanding the air unit in Nevada — had learned of the change only a few hours earlier. But short notice is routine in the nuclear testing business. Atomic crews must be ready, like Broadway understudies, to step in and perform at the director's command.

Lieutenant Colonel Eugene W. Cox, the B-36 pilot, noticed no signs of nervousness in any of his thirteen-man crew as they walked out into the night. His huge craft was the key one selected to carry the critical device. The assignment: to plant a sky-high mushroom on the black-and-white bull's-eye painted on the desert floor at Ground Zero. Even though this would be the first "live" drop for most of the crew, including Cox himself, he saw no reason why the mission should be anything but routine. It

would be similar to over fifty other drops he had flown with "unarmed" bomb prototypes.

Besides, the specific script for this particular drop had been written long in advance. Just as each aircraft knew its place in the complex but carefully-worked-out pattern, so each man knew his individual role to perfection. Every detail of every man's job — including even minute instructions in the event of any foreseeable type of difficulty — had been committed to writing. Each man knew all his lines and all his cues. He had rehearsed until reflexes were built-in.

For several months, at places like Salton Sea and Muroc in California, over the Nevada Test Site, and at the home field of the 4925th — Kirtland Air Force Base, Albuquerque, New Mexico — Cox's team had practiced together until they could perform with flawless precision. Still, unforeseeable things *could* happen, had happened, and each man was expected to ad lib any time the prepared script didn't prescribe for the unpredictable.

Cox stretched sleepily, then shivered. The cold here wasn't the damp cold of his native St. Louis, the kind that penetrated your bones. But it *was* cold. And cloudy. He wished he were back in his bed in Albuquerque, where his wife, Mary Anna, would be sleeping soundly at this moment — if none of the children had awakened her.

At least a man could tell his family a bit more about his job these days, which was a help. There had been one exaggerated case, back on those first "Ranger" tests, when the wife of a 4925th man, already fed up with his airy, "Sorry, but I'm not permitted to divulge the nature of my work" every time he came home late, finally broke down into tearful accusations when he was gone nearly forty-eight hours with no explanation. It took a hurried visit from a superior officer to keep the poor fellow's domestic tranquillity tranquil.

Walking silently beside Cox was First Lieutenant Jackie Harvey, the red-headed, baby-faced navigator, who was trying not to look at the sky. Orion and the Big Dipper were up there in their

places, all right — when you could see them through the clouds. If the tower shot had been cancelled, it must be because high winds had made radiation fallout a dangerous possibility. High winds aloft meant tough navigating. It would undoubtedly take a lot of last-minute, on-the-spot calculating to make those precision turns on the final run. He hoped there would be enough of a break in the clouds for Ike to see Ground Zero.

"Ike" — Captain Paul Eichenberg — the chunky bombardier, was the man who would be subject to the heaviest pressure. It was he who, with his auto-pilot and radar-equipped "K" bombing system, would have to guide the plane over the right spot at the right instant and make the big decision — to drop or not to drop. If the decision was bad, it might mean that all the other planes making their own precision flights from all over the country would have flown in vain, that all the instruments and cameras recording on the ground, all the troops participating from Desert Rock, all the scientists and observers below — all the efforts of hundreds of people and millions of good American tax dollars might be wasted.

But Eichenberg was not thinking about his weighty responsibilities at the moment. He was thinking what a pity it was they wouldn't be getting into Las Vegas on this mission. Ziggie Elman was featured at the Last Frontier. Ike had played a mean trumpet once himself, in his own band back in Ohio, before he had given it all up in favor of the Air Force and six kids. He would certainly like to hear Ziggie, who was one of the all-time greats.

"Sure wish we could get into Vegas," he said.

"Just as well," commented Major Fain Pool, the copilot. "That can get mighty expensive." Pool was the only one of the senior officers who had dropped a live A-bomb before. He had also let fly a lot of non-atomic stuff — in Korea. Looking down at the scarred fingers of his right hand, Pool smiled to think how many years those scars had kept him out of the Air Force. During World War II he had been considered practically a 4-F. Now, with the same scars, here he was piloting ten-engine atom bombers.

OUT OF THE OBSCURITY the big B-36 suddenly loomed, its sleek, handsome outlines shining pale silver in the dim starlight. The men greeted "Chuckwagon" (it was, literally, the wagon that would chuck the bomb) with familiar affection. Mingled with the affection was a deep respect — for these were humble men, bearing little resemblance to the cocky flyboys of the movies, men who felt tiny in the presence of this monstrous $5,500,000 bird with a tail over three storeys high and a wingspread capable of shading a whole city row of houses.

This was certainly one case, Cox thought, where familiarity bred no contempt. In spite of his years of experience, in spite of the weary hours of drudgery that attended every flight, he would never get over the feeling of romantic awe at the idea that puny men could, at will, lift this leviathan into the sky, load her ample bomb bays with packages of trapped atomic energy, and, at their whim, unleash their cargo from docile silence into deadly fury.

There she stood, a monument to man's audacity, nearly 300,000 pounds of metal, rubber, wire, and gasoline, with six 3800-horsepower engines and four auxiliary jet engines, each lending an additional 5200 pounds of thrust for the climb into oxygen-thin spaces. Those Wright boys at Kitty Hawk would sure be surprised, thought Cox, if they could see what they had started.

Soon Chuckwagon's engineers, First Lieutenants Byron D. Miller and Dwight L. Odom, assisted by their crew chief and a swarm of mechanics — including the scanner-mechanics who would ride along in the rear compartment to watch for troubles during the mission — would be climbing all over the plane for a thorough, last-minute inspection. And the special equipment officers, Captains Steven R. Bartalsky and Earl R. Follensbe, would be busying themselves with their "special equipment": the nuclear device itself and the complex apparatus involved in arming and disarming it. (The arming occurs only on the final bomb run.)

Meanwhile, similar crews at bases from California to New Eng-

land would be readying their planes, of all types and sizes, for a variety of missions — not only for the Air Force, but for the Navy and Marine Corps as well. They would all be directly concerned with Chuckwagon's fissionable cargo and bombardier Eichenberg's moment of decision.

At H-hour over Ground Zero each aircraft was due at an exact point in space, flying at a fixed speed at a prearranged altitude, facing a direction where its instruments would be optimally placed to catch the precious data given off by the mushrooming fireball. Some planes would be coming in on training missions. The Strategic Air Command, Tactical Air Command, and Air Training Command, on some shots, sent whole flights of planes thundering over the test area, to give them the feel of what it would be like if *they* had been dropping A-bombs. Others would be involved in studying blast effects and performing scientific experiments under the guidance of the Armed Forces Special Weapons Project — AFSWP, whose field command had helped plan the entire air operation, and whose magnificent work has gone unpublicized simply because it is too secret to talk about.

The number of planes employed in this first airdrop of Operation Teapot was not announced; but normally anywhere from 40 to 160 aircraft might be participating in an atomic shot. Coming, as they do, from such great distances, and pinpointed in space and time with the exactitude required for a successful outcome in the restricted area above Ground Zero, this aerial flotilla provides a four-dimensional traffic problem that exists nowhere else, in peace or war.

The traffic cops charged with coordinating the vast effort were the small group of men in the 13 by 20 foot control room at Control Point, Nevada, where — as pilot Cox climbed into the flight deck of his B-36 a long way away — things were beginning to hum.

Over the entrance to the control room was a black sign with small, neat letters: "This is Dragnet."

Most of the west wall was covered by a neon-edged plexiglas

plotting board, ½ inch thick and 8 feet square, where plotter Melvin Nimon, a dark, husky airman, was busy tracing, with black grease pencil, the preplanned flight paths of all the planes due in at H-hour.

Under the fluorescent lights the plotting board looked like an abstract painting by Piet Mondrian. The focal point of the grid lines indicated Control Point. Airlanes through the test area were straight blue sets of parallel lines. A single purple diagonal was the outer boundary of California's air defense zone. Nellis Air Force Base was outlined in red, as were the high mountain peaks. Near the southwest corner, in green, like the squiggly profile of a caterpillar, was Death Valley. In dark blue, toward the southeast corner, Lake Mead sprawled like a Rorschach inkblot. At any given instant during the test, the board would give a detailed picture, at a glance, of the position of every plane within twenty-five miles of Ground Zero.

Facing the plotting board were four large scopes whose circular screens at the moment were blank. Radio and radar equipment was being tested, "mission status" boards set up, flight plans distributed to the air controllers, communications lines with test directors and scientists checked.

In a few hours the scopes would start picking up participating aircraft as far as 200 miles away from the proving ground. The telltale blips on the screen (some of them relayed by advance radar stations) would enable the controllers to keep tabs on them at every moment of flight.

This type of pinpoint control was something new under the sun. A crude system had first been tried out during comparatively recent tests in the Pacific. The highly-perfected system now in use — details of which are classified — was developed only lately by Martin Oberg, a Western Electric Company engineer on loan to the Air Force. Oberg was on hand now, looking over the components of his "primary electronic reporting device," the ingenious mechanism which made the whole tracking and controlling system possible.

IT WAS NEARLY 10:30 A.M., and Oberg was leaning quietly against the south wall of the control room, alertly observant. Also watching silently in the back of the room were Colonel Paul H. Fackler, air operations officer, major strategist in planning and integrating the program. Unless something went wrong, Fackler would do little except watch the progress of the operation. The controllers were at their scopes, whose screens were now alive with signals, and the radio operators were at their sets.

Anxiously scanning the blips on the left rear scope was a cherub-faced officer with blond, crew-cut hair. This was Major John A. deVries, senior air controller, key man in the control room. He would direct the whole performance, supervise controllers, insure that every plane was following its predetermined flight pattern, give periodic reports to Colonel Fackler and test manager Reeves, keep an eye out for any deviations from plan or any changes made necessary by weather or radiological conditions.

The atmosphere in the control room was tenser than usual. There had already been one postponement of several hours, partly due to weather, partly for reasons undisclosed. Air crews all over the nation had to set back their schedules. Chuckwagon, all revved up to go, had to do some painful re-readying. H-hour was now 11:30, but the weather outlook was still short of promising. Just outside the control room, on a small balcony, AEC Chairman Lewis Strauss, a hooded and goggled figure, paced impatiently.

deVries was looking worriedly out the window at the overcast sky when the man at the next scope, Captain Ray Ilich of the Air Research and Development Command — one of the Air Force's top controllers — nudged him. He was just getting a message from pilot Cox.

"Hello, Dragnet. This is Chuckwagon over Sidecar at assigned altitude. Ready to go. Over."

"Hello, Chuckwagon. This is Dragnet. Go ahead."

The B-36 had just come in over Las Vegas. Not directly over, since safety rules called for devious flight paths to insure there could be no mishap over inhabited areas.

Eugene Murphy, a small, bespectacled fellow about to enter the gambling casino at the Desert Inn, heard the roar but searched in vain for its source. News of the shot had been in the *Sun* and *Review-Journal*. "How can they shoot anything off on a day like this"? Murphy asked his wife. He wondered if it would be a big one that would rattle the casino's huge windows.

While Murphy was wondering, plotter Nimon's yellow grease pencil was at work, writing on top of the black notations already on the board. Rapidly but neatly he printed the letters "CW-1" with other obscure symbols and an arrow pointing in the proper direction (the board was oriented to magnetic North). Chuck-wagon was preparing its first upwind test run, and Ilich had turned the earphones over to Major George Trimble, sitting at the table next to him.

Henceforth there would be continuous communication between Trimble in the control room and bombardier Eichenberg in the B-36. There was no need for formal code words here. It would all be "Ike" and "George." Eichenberg and Trimble were both 4925th men — as were deVries and Fackler. Trimble was a bombardier himself. The knowledge that Trimble had carried many an atomic payload over the same run gave Eichenberg, dropping his first live one, an added sense of security.

Trimble sympathized with Eichenberg on a day like this. There were so many things that could go wrong. He vividly recalled one occasion on a final bomb run, at H minus twelve seconds, when the electronic auto-pilot (the device that maneuvers the bomber over the target in synchronization with the bomb-release mechanism) simply quit working. He could, quite legitimately, have called off the shot, since a badly-aimed drop could be a hazardous, expensive occurrence. But this was a particularly crucial experiment. Calculating his chances swiftly, he elected to go ahead. With the rest of the crew holding its breath, the pilot

eased the plane over Ground Zero while Trimble, with his eyes on his Norden bombsight, guided him in with the old-fashioned hand signals of the Billy Mitchell system. The atomic detonation came only a negligible fraction-of-a-second late and occurred within 100 yards of Ground Zero — which, moving at 500 feet per second in the dark of night from six miles up, may be considered a bull's-eye.

"Bull Whip One inbound at assigned altitude," Ilich announced.

Nimon's grease pencil moved again. Bull Whip One was a B-50 belonging to the Air Research and Development Command. It would be collecting data as part of AFSWP's weapons-effects study. Almost instantly Bull Whip Two (another ARDC plane, this time an F-94-C) checked in. Then a Marine craft called Six Gun. Then, in rapid succession, Mule Train, Sidewinder, and Gun Belt; Paleface, Arrowhead, and Loco Weed. Nimon's efficient grease pencil moved ceaselessly over the plexiglas. The control room was filled with a busy buzz of conversation.

At the forward pair of scopes, Captain Floyd G. Mills and Technical Sergeant Clifton S. Richardson were keeping one another — and Major deVries — posted while they kept in contact with the planes they were controlling. Some craft were merely monitored to make sure they were where they should be; others were actually guided to their spots by the controllers, like puppets on electronic strings. Sometimes it would be necessary to slow up a plane that was getting into its orbit ahead of schedule, or hurry one that was a bit behind.

"Mule Train, this is Dragnet," said Sergeant Richardson. "Your position is good at this time."

"Ike," said Trimble, into his telephone, "is there enough of a break in the cloud cover to see your point of reference?"

"Paleface Two coming in from the northwest over Tonopah," announced Ilich.

"Broncbuster Three," said Mills, "this is Dragnet. Back up four."

Below, the quiet counterpoint of voices. Above, the roaring

machines moving easily, elegantly into places assigned them in the cosmic choreography.

Up on the flight deck of Chuckwagon, engineers Miller and Odom concentrated on their panels full of dials and control levers, watching carefully the wavy green lines on their small cathode-ray oscilloscope for any sign of engine troubles. Keeping a constant flight speed against a diagonal wind that varied between 75 and 100 miles an hour was hard work. On the lower deck, navigator Harvey was sweating. His pencil flew over the paper, making hurried calculations. "This is going to be a tough one, Ike," he told his close companion, the bombardier.

"You're not telling me anything," said Eichenberg who, at the moment, could see nothing but the undercast in his "K" bomb sight. With this marvelous instrument, Eichenberg could drop a bomb on target, rain or shine. Under battle conditions the bomb bay would open on the first run — there might not be a second chance. But for test purposes, to insure maximum safety, test manager Reeves had decreed that the bombardier must be able to see Ground Zero for at least ninety seconds prior to H-hour.

H-hour for everyone else was 11:30. For the B-36 it was many seconds earlier. For them it was the instant the bomb was away; for the others it was the moment of detonation many thousands of feet below. Copilot Pool in the plane and Major Trimble in the control room held the master watches that synchronized the entire operation. On a day like this there would be a few practice runs first, to learn the proper timing and get the feel of high-velocity winds. Every man had his oxygen equipment handy as the lumbering sky-behemoth started its "racetrack orbit," a great ellipse that would take exactly fifteen minutes. The hairpin turns had to be made in exactly two minutes, with no seconds to spare. The wind changed constantly. While Cox kept his eye on the gyromagnetic compass, Pool concentrated on the stopwatch. On the first run, guided by navigator Harvey's calculations, they had to make a 204° turn upwind and a 164° turn downwind to stay on course.

They made two "Old Maid" runs, just for the exercise, then got ready for the "Sad Sack" run, where the bomb would be released.

"In twenty seconds," announced Ilich from the control room, "it will be H minus ten minutes." All the men at their ground stations, and all the aircraft circling above, were tuned in.

"It is now H minus ten minutes," said Ilich. The countdown had been made once every ten minutes. Now it would be once every minute; during the last minute, every five seconds; during the last ten seconds, every second.

"Can you see anything, Ike?" asked Trimble.

"Not now," said Eichenberg. "I could a minute ago, but I've lost it. Maybe I'll pick it up again."

deVries went back to give Fackler his air-readiness report. All the planes were in their orbits, turning in tight little circles drawn in the sky by compasses of flesh and steel.

At H minus ninety seconds the target was still not visible. "Negative . . . negative . . . negative!" Eichenberg sang out. Special equipment officer Bartalsky relaxed. There would be no need to arm the bomb on this run. The other aircraft swung into slightly wider, easier orbits, waiting for another racetrack orbit and hairpin turn by the B-36.

The second run was abortive, too. On the third run, at almost 12:00 o'clock, copilot Pool started whistling the theme from the movie, *High Noon*. Everyone picked it up and suddenly Eichenberg felt very confident that this time he would make it. His hunch turned out to be right. But just barely. Only instants before H minus ninety seconds there was a break in the clouds.

"Things are looking up!" said Cox.

In a moment Eichenberg could see the bull's-eye painted on the ground far below, magnified in his bomb-sight.

"It looks like a shot," said Eichenberg to Trimble.

Trimble relayed the message to Ilich, who instantly sent the word out.

Bartalsky got ready to arm the bomb. Every plane was back

dancing on its pinpoint. "H minus fifteen seconds," said Ilich. The break in the clouds was getting bigger. Eichenberg was certain now it would last. "H minus ten seconds."

Ilich and Eichenberg counted together: "Nine . . . Eight . . . Seven . . . Six . . . Five . . . Four . . . Three . . . Two . . . One . . ." Eichenberg sang out, "Com-plete!" The bomb was away.

All the crew except Cox and Pool quickly put on dark goggles to keep themselves from temporary flash blindness. The pilots, who still had to watch their instruments, bent low over their panels, squinting and shading their eyes from the enormous fire they had created in their wake. In the control room everyone turned his back to the window. Outside, Admiral Strauss had stopped pacing.

First one shock wave from the blast, then one from its reflection, jolted the plane. The ground rumbled near Control Point. Eichenberg turned in time to see the stem of the mushroom hit the ground and cover the target with dust. Everyone laughed with relief as Cox banked the plane so they could watch the fireball rise on their way home. The sky remained red for a full two minutes.

At the Desert Inn in Las Vegas, Eugene Murphy, lunching with friends, heard nothing but conversation, the clatter of dishes, and the click of dice on the craptables.

In the control room there was a quick change of plotting boards—a new one superimposed on the old to begin plotting the radioactive cloud. Already off the ground were terrain survey craft whose job it was to "sniff" the radioactive mass much as a hunting dog sniffs its prey, and report its position continuously to the control room. Other planes would be going into the cloud within twenty minutes of the bang to take samples, darting into it again and again, until they had all they needed to satisfy the scientists of Los Alamos and Livermore. (On some shots, but not this one, the 4925th sends drone planes from Indian Springs, Nevada into the atomic cloud only two minutes after H-hour.)

Below, Nimon had shown the position of the radioactive cloud

with a big red encircled X and was already plotting the activities of the 4925th's post-shot aircraft. There was no pre-planning involved here. The planes went, literally, where the winds blew. The scopes now followed the samplers and trackers, and deVries was reporting danger areas to test manager Reeves and his assistants. The cloud had risen higher and was moving, wind-propelled, toward the Utah border.

Directing this major operation was a B-50 "mother craft," which kept in touch with all planes aloft (about twenty-five) and the control room below. In it were Colonel Karl Houghton of the 4925th and Dr. Harold F. Plank of Los Alamos Scientific Laboratory, veterans at harvesting radioactivity and caging it so it couldn't escape.

AS ANY LOVER of Greek mythology knows, flying too close to the sun was the undoing of Icarus. He singed his wings and fell into the sea. The moral of the story was that man should not aspire so high.

Yet, there in Nevada, in 1955, man had not only flown close to the sun — he had created the sun, at a time and place of his own choosing.

At 2:30 P.M., while Mrs. Mary Anna Cox was wondering why her husband hadn't got back from his early-morning mission in time for lunch, pilots Cox and Pool were bringing Chuckwagon back to Kirtland Air Force Base in Albuquerque. With the B-36 wingspread almost twice as wide as the runway, and the auxiliary engines hanging only five feet above the ground, they landed south, in the face of a 45 knot duststorm from the west — probably the most hazardous feat of the entire six-hour flight.

At Control Point, controller deVries and plotter Nimon were still hard at work. In the air, the cloud trackers were still sniffing the lazily-dissipating radioactive cloud, drifting harmlessly now in the general direction of Salt Lake City. At the Desert Inn in Las Vegas, Eugene Murphy, having coffee with Wilbur Clark, remarked, "I guess they didn't have a shot today after all."