

AIRPORTS EVERYWHERE

**Paving the way
for civil aviation.**

by Carl A. Posey

On the quetzal-shaped map of Guatemala, the bird's head is the department of Petén, a broad plateau soaked with swamps and shrouded in some of the world's densest rainforest, with here and there a chicle, banana, or rubber plantation. Flores, Petén's capital, is an island village in the southwest corner of Lake Petén Itzá, where the quetzal's ear would be. It was to this provincial hub, in 1933, that Pan American Airways sent my father, Carl A. Posey Sr., to build his first airport.

The young engineer—he had just turned 27—survives in a time-browned photograph of a solidly built six-footer in khakis, boots, leather jacket, narrow-brim Stetson, and holstered .38 revolver. He was fresh from the Panama Canal Zone, where he had been a surveyor on military airports, turning grass strips into runways. He had entered the new profession of airport engineering from the Oklahoma highway department. There was not a great deal to read on the subject—the idea of ports for flying machines was still a novelty. He had other aeronautical aspirations as well. In Panama he had soloed in a Travel Air 4000 biplane on floats, and he'd been a regular cadger of instructive rides with military pilots flying the isthmus.

In 1933, married and the father of a son, he learned that



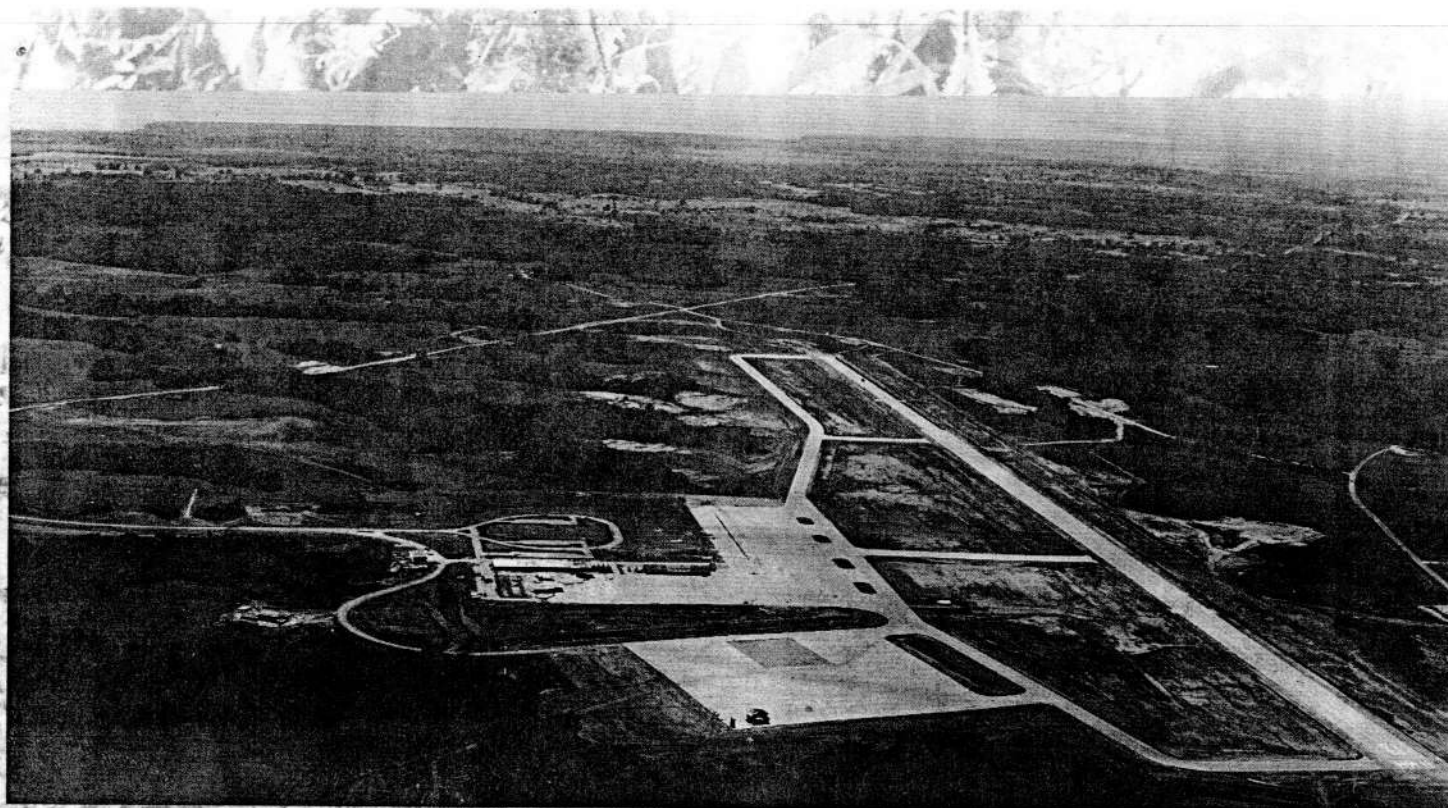
In 1933 fledgling airport engineer Carl Posey Sr. arrived in Guatemala to build an airport near Flores (left). Little more than a strip carved out of the jungle, the facility did offer the comforts of "Terminal A" (right).

ANN F. PURCELL



Posey, here with a Beechcraft C-45 used to scout for an airport site in Costa Rica, was the rare airport engineer who was also a pilot. A supervisor in Guatemala once told him, "Don't talk to pilots. They don't know anything about airports."

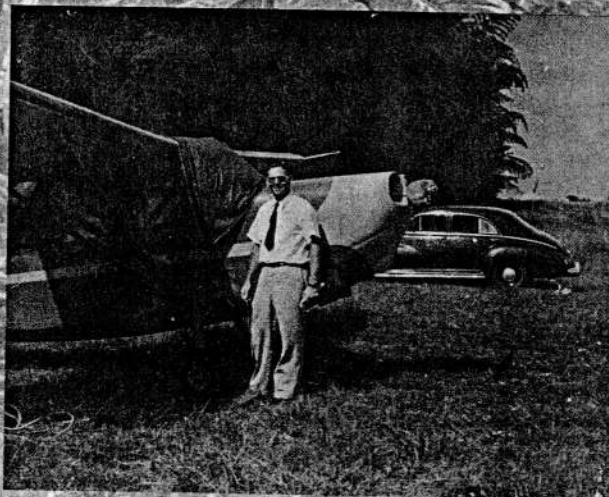




Construction of Panama's airport at Tocumen faced political as well as engineering challenges. Despite all the difficulties, the airport was completed in 1948, with a 7,300-foot runway capable of handling anything that flew.



One bonus in Panama for Posey the pilot was the use of a Stinson L-5. Such light aircraft were ideal for scouting airport sites.



In Costa Rica, well-dressed engineer Posey plans out El Coco Airport from horseback. It was 1946, and the dawning Jet Age was necessitating a new generation of airports.

PAMELA ZILLY

Pan American Airways, itself just five years old, wanted airport engineers. The carrier was building a string of airstrips down through Central America, where it intended to use a new generation of hardy transports—Sikorsky S-38 amphibians and Ford Tri-motors—as the Spanish did galleons. There was treasure—people, roosters, pigs, supplies, chicle, rubber, and fruit—to be moved, and, in a world with neither many rivers (the drainage is mostly underground) nor roads, airplanes were the way to do it.

One dawn that autumn, my father boarded a Ford Tri-motor at Panama's Paitilla airport; 12 hours later he landed in Guatemala City, about 170 miles and a rugged line of mountains short of Flores. Another hop in a flying Ford took him to a pasture at La Libertad. From there a rancher drove him through the remaining 20 miles of swamp to Lake Petén Itzá. The engineer hung his hammock in the only room in the only hotel in Flores, then turned to the business at hand.

Arriving in the Petén jungle in the 1930s was like traveling back to a pre-industrial age. "My mobile equipment consisted of eight oxen and a stump puller," my father recalls. "When a stump had been pulled, we filled the hole with layers of dirt and rocks and tamped it into a hard surface with hand tools made from tree trunks." His men were laborers from Flores and the surrounding jungle, and they worked with axes, machetes, saws, picks, shovels, wheelbarrows—there was not a chainsaw or tractor to be seen. The chief engineer's transportation was an unfriendly white mule with a penchant for pressing its rider against thorn trees.

A few months' hard labor cleared trees from a rectangle a few hundred feet on a side, and with the stumps pulled and the ground flattened, a strip began to emerge. "I sent a message that I had 800 feet cleared out," my father says. "If you can land and roll in 800 feet, I said, 'you can come in.'" The glide path airplanes fly to today's runways typically descend at a stately two percent—a drop of two feet per 100 feet of horizontal travel. The slope at Flores was a precipitous 14 percent, designed to plunk a Ford Tri-motor onto a short field over a wall of jungle trees. "They sent a plane out with Bill Winston flying and D.G. Richardson, the western division operations manager," my father says. "I was standing at the end of the field where the strip ended and the stumps began. I had a flag to mark the end of the runway and figured that they'd have to go through me if they overran the strip and hit those stumps." The hand-held flag and a wind-sock were all they had for aids. The new field had no radio, and neither beacons nor lights; its terminal was a pre-assembled one-room wooden shack. But the strip slowly turned into a flat island perhaps 1,200 feet long in an ocean of tall trees, and the Pan American airplanes began coming in.

After about six months at Flores, the engineer was sent 50 miles or so northwest to the Adams ranch, where the airline wanted to fly in with supplies and fly out with chicle, the elastic stuff of chewing gum. Riding a mule, he traversed the 30 miles of swampy forest in a few days. At the San Pedro river, dugouts took him the rest of the way. "But the plantation was all swamp: you couldn't build anything there," he recalls. "So I went out in the river to take soundings, to see if they could get in with a Sikorsky." But, crouched in the bottom of the canoe, he sneezed powerfully—and drove a



Posey's Latin American jobs included keeping the airport at Quito, Ecuador, open during flooding (right). His work in Chile (above) once got him introduced at a university lecture as "the father of Chilean aviation." In Santiago he even got the use of the defense minister's office (above right). His airports helped open up Chile to Douglas DC-3s and their descendants (opposite).



fragment of bone through his lower colon. Now immobilized and very sick, he painfully retraced his rough path: back up the San Pedro, then by mule to La Libertad, where a Pan Am Ford waited to take him to doctors in Guatemala City, and finally to a surgeon in Texas.

After recovering, my father returned to Central America to work on Pan Am projects in San Jose, Costa Rica, and Puerto Barrios, Guatemala. "We were all so loyal," he says of those days. "I think I would have killed a man for Pan American."

In 1947 airlines couldn't land in the Republic of Panama—they had to operate from Albrook Air Force Base in the American-controlled Canal Zone. In the old days, the Fords and Sikorskys could fly from Paitilla, a small strip on a point of land that jutted into the sea from a Panama City suburb. But a new wave of aviation was spreading across the hemisphere, propelled by the four-engine giants that were rising from the experience of war—DC-4s and DC-6s, Constellations, Stratocruisers—big airplanes that needed big, hard, lighted runways, terminals that could handle crowds, a higher standard of maintenance, airways, navigation aids, weathermen, communications, controllers. Since 1945, American engineers had been traveling around the world turning wartime military fields into commercial ones and gravel strips into real honest-to-God airports. Still, to go anywhere from Panama by air one had to go to Albrook field and board a Pan American or Panagra DC-3.

Not that the little country hadn't tried to remove this aeronautical thorn from its national pride. In 1945 engineers picked a site about 12 miles northeast of the capital that was level but soggy, lying less than 25 feet above mean sea level, two miles from a coast with 20-foot tides. The eager government swiftly bought the property and plunged more than \$300,000 into the project. Now a new administration, not trusting the actions of its predecessors, fretted about the job and asked the U.S. government for technical help.

By this time, better paying jobs had lured my father away from Pan Am—and, for a time, from aviation. In 1942, however, he had joined the Civil Aeronautics Administration as district airport engineer for Minnesota, Wisconsin, and North Dakota, where a string of airports was being built for ferrying warplanes via Alaska to the Soviet Union. For the past two years he had been the CAA's airport liaison officer with the Caribbean Defense Command and had worked on airports in Costa Rica, Venezuela, and Chile. He was one of a handful of American airport engineers helping Latin America get ready for a new age of long-legged transcontinental flight.

One supposes that bridge builders see bridges when they look at any gorge. Certainly, airport engineers must see an airport in any reasonably level piece of ground. To discover these unbuilt airports hiding in terrain, my father explains, you check drainage, soil, and aerial approaches, then accessibility and the kind of material that waits in a nearby stream or quarry to be used for build-

ing. Given the physical setting, you factor in weather to orient the runways with the prevailing winds, then sit down and design something that will accommodate the kind of aviation expected there. But it is not just building runways. You need highways to the nearest city, electrical power, sewers, water, a terminal, maintenance hangars, fuel systems, lights. "It's a town, really, the main feature of which happens to be a runway," he says. Panama's boggy site was no place to build this town.

Using a recently acquired Stinson L-1 Vigilant, a single-engine reconnaissance monoplane that, with huge slotted wings and a 295-horsepower radial engine, could fly at less than 50 mph, the engineer went looking for the right site. He found it just two miles away, at a place called Tocumen.

His scouting work done, my father embarked on other projects. But work at Tocumen faltered and he was persuaded to leave the CAA long enough to finish the project, one that rivaled all other Latin American airports. Its runway, 200 feet wide and 7,300 feet long, was immense for a sea-level airport—it would take anything that flew, including Convair's gigantic B-36 bomber. It added 15 miles of first-rate highway between Tocumen and Panama City, and an air-conditioned terminal building was planned—an exceptional touch of luxury in those times. Tocumen took shape, not beneath swarms of native workers but beneath a trio of state-of-the-art paving machines, leap-frogging along the runway to lay down 10 parallel 20-foot-wide strips of concrete. "Runways get about the same loading as a highway," my father says now. "Pavement is pavement. But...a mile of highway will take you a mile. A mile of runway takes you anywhere in the world."

The project at Tocumen bore some family resemblance to the little strip at Flores: It was a sink for improvisation. Despite abundant assistance from the U.S. government, time, material, and money were constantly in short supply. Peruvian International Airlines, a key user, decided it wanted to begin operations in 1948, a year ahead of schedule. To accommodate the surprise, two large nearby shelters used to store cement were transformed: as the cement was used up, the shed space was turned into a terminal area, creating a "temporary" facility that ended up serving Panama for five years. When a post-war shortage of structural steel delayed construction of a hangar designed to ensure that major main-

tenance could be done out of the weather, nose hangars were improvised that covered everything but a four-engine transport's aft fuselage and tail section.

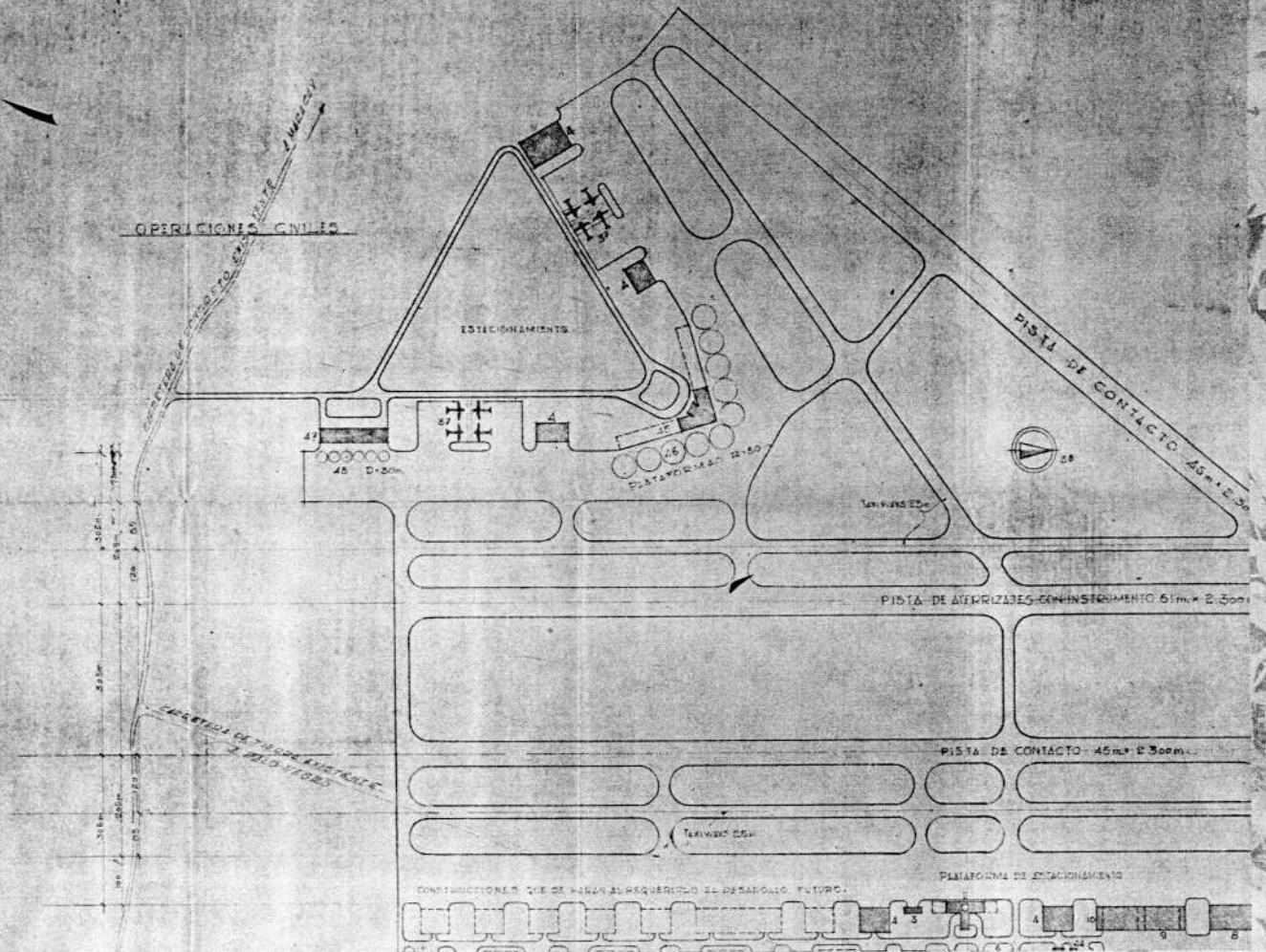
But such things were engineering problems, and they had engineering solutions. Political problems were thornier. In an era of deepening anti-American sentiments in Panama, Tocumen became the center of a storm. The American engineer was imperialism personified, as well as the tender of what many saw as a lush money tree waiting to be pruned. Following local custom,



Posey used a Stinson L-1 to locate the site at Tocumen for the Panamanian airport. During construction, improvisation was key, such as when a concrete storage building was emptied and used as a terminal (opposite). Venezuela's Palo Negro airport (below) proceeded from plans to reality despite the overthrow of the government.



PROYECTO N° 2
 PISTAS PARALELAS Y UNA DIAGONAL



unskilled relatives of the mighty appeared at the airport office, certain of employment. One "electrical engineer" had a noteworthy credential for designing the lighting system: he had once landed in Miami at night and had seen the runway lights flash by. When such applicants were sent home with no job, national attitudes soured further. News stories soon alleged that the American tyrant was shaving two feet off the runway width and pocketing the savings.

Early in 1948, another election brought yet another blow. The incoming minister of public works declared that, of the \$1.5 million set aside for the Tocumen terminal, only \$125,000 remained; he noted that even this would quickly evaporate if not used promptly. My father elected to put the money into a control tower and meteorological office, but warned that the resulting structure would be an eyesore. It was—and one that remained uncompleted until 1953, when Panama's first military strongman, "Chi Chi" Remón, forced the issue.

The airport opened in 1948 for the Peruvian airline and its fleet of gleaming DC-4s. It was one of a string of major airports rippling out through the Americas. Their designs now occupy many of the loose-leaf binders containing airport studies that burden the bookshelves in my father's Florida study.

At the Bolivian capital of La Paz, my father recalls, "they had a field, nothing fancy, where you took off downhill and landed uphill." This unpaved runway lay about 13,000 feet above sea level, and the air had an almost lunar thinness. Bolivians proudly called the airport El Alto ("the High One") and noted that it was the highest major field on the planet. Any airplane that could climb to 13,000 feet could land here, but few could rise from its surface. Tales were told of airplanes landing at La Paz, then being dismantled and trucked to a lower elevation before they could be restored to flight status. Others flew off the end of the runway into an abyss, where, with any luck at all, they acquired sufficient airspeed to continue. But the wonderfully improvisational brand of aviation that had characterized Latin America for so long was giving way to the more formal kind already operating in the north. There were instrument landing systems now, and navigation aids of increasing sensitivity and sophistication. And the airways were plied by the big four-engine propeller craft and their turboprop descendants, not agile DC-3s.

Studying the Bolivian arrangement, the engineer was keenly aware of yet another wave beginning to crash just behind him. The jets were coming. In Long Beach, California, the first DC-8 had begun its taxi tests, and Boeing's 707 prototype had already flown over Seattle. Not much was known about how the Jet Age would evolve. For the airport engineer, jets required a higher order of everything—approach and landing systems, fuel systems, terminals, maintenance—

and they added fighter plane velocities to the sluggish airways of the day. Now back with the CAA, his mission had been to help Latin American countries build their way into the Jet Age. In country after country, new fields were under construction, or existing ones designed for big propeller-driven craft were being stretched, reinforced, moved, and improved to serve the new generation of jet transports.

How did the dawn of a new age look from El Alto? No one was quite sure. The airport criteria manuals of the day addressed sites as high as 8,000 feet above mean sea level. Presumably, beyond that were monsters.

"We figured that if you had a runway 20 miles long with a one-percent ascending gradient—that's just about level—you couldn't take off," says my father. The resulting runway had a gradient slightly more than 1.5 percent and was so long—13,000 feet—that it is visible from the space shuttle. With modern engines, transports no longer picked up their flying speed by plunging into the void. But chances are, if you take off from El Alto in 1993, you will take off...downhill.

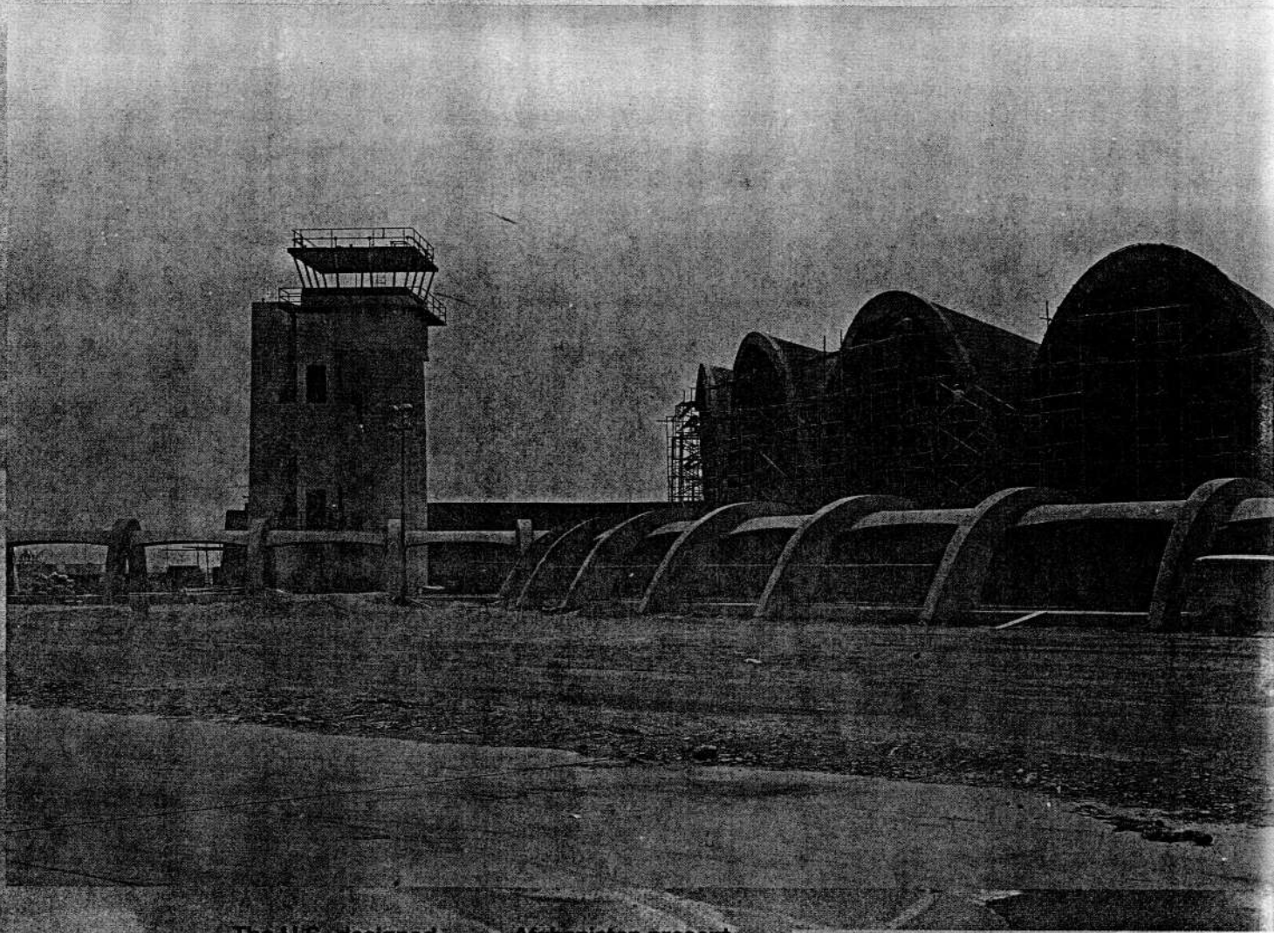


When the engineer came to Afghanistan, he did so reluctantly. He had had an idyllic post as a senior airport engineer with the Federal Aviation Administration—created out of the CAA in 1958—at the large aviation mission in Spain. But a call had come from Washington, again with the usual pitch: the job is tailor-made for you. An hour and a half later, he had agreed to a commitment of three, and only three, months in Afghanistan.

"I knew it was going to be hard—at best—but Kabul was...repulsive," offers the man who served with equanimity in Flores. The job was challenging, and layered with cold war competitiveness. The Soviet Union was building a world-class field for Kabul. The United States countered with a bouquet of them: a major airport and a 200-student aeronautical school at Kandahar, plus secondary fields at Faranha, Herat, and Jalalabad, which was also a large military field. Another airport was being considered for Mazar-e Sharif, near the Soviet border. This was the largest FAA mission ever attempted overseas and, like all such ventures of the day, it was whipped around by the easily manipulated superpower rivalry.

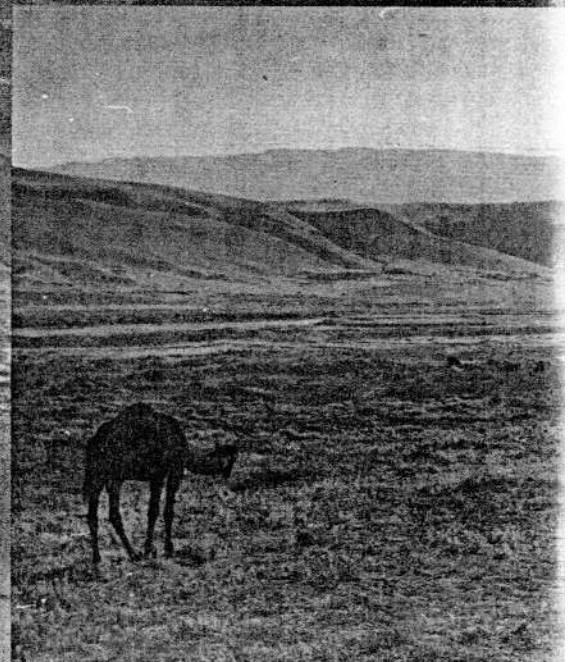
The facilities, designed in the United States for the cost plus some percentage, were beautiful, with gracefully rounded terminals and housing and grand boulevards leading off to vanishing points in the desert. They were also vastly overdesigned. In a country with little rural electrification and few vehicles, planners envisioned bridging cities and airfields with four-lane highways bounded with dual files of lamp posts, as well as airport parking lots large enough to contain more than all the cars in Afghanistan. "Kandahar had been designed to handle a hundred 707s a day, when they got in about one DC-4 a week," my father says.

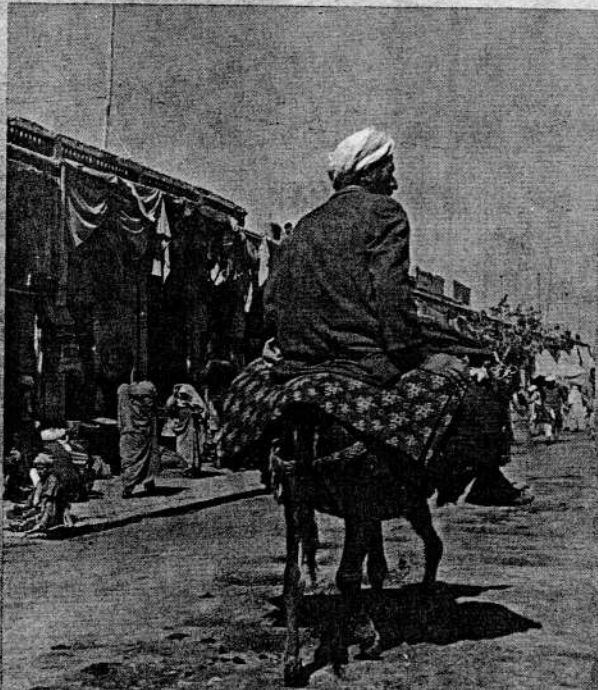
The project straddled two distinctly different aeronautical epochs. "They had designed a very fancy fueling system and when the time came to test it, we needed to haul 5,000 gallons of gasoline from Meshed, in Iran, all the way around to



The U.S.-designed terminal for the airport in Kandahar, Afghanistan, was part of an over-engineered project for a country where much transportation was still the province of mules and camels.

Afghanistan presented a difficult situation for Posey: the Americans experienced greater tension with the officials of their host country than with their cold war rivals, the Soviets.





JOHN ELK III

Quetta, in Pakistan, then by highway to Kandahar. So we used water instead. We always had to scrounge like that. But we also had a lot of stuff we couldn't really use. They had thousands of dollars in X-ray equipment at the Kandahar airport. I turned it over to the hospital in Kabul."

Little could be done straightforwardly. Supplies often had to be loaded on camels and carted around the borders, rather than sent direct—the Royal Afghan bureaucracy did what was necessary to keep the American effort from overtaking the Soviets'. Although the Americans met their Soviet counterparts, there was little social contact beyond a tour of the new Kabul control tower, with its immense banks of switches for individual lights—an endearingly Soviet touch, perhaps. The U.S. mission's derelict airplane, a Beechcraft C-45, had no one to keep it flying, so mission workers traveled by car or a Pan Am-operated cold war airline. All business correspondence passed from English into Persian and back again, losing sense with each translation. Between the American engineer and his hosts, there was little love and less admiration. Some Westerners were horrified by the Afghans' seemingly casual brutality—in front of the young American woman who taught them, two Afghan boys were beaten senseless and their arms snapped for unruly classroom behavior. As he had in Flores, the engineer carried a gun.

Inevitably, the Afghan government began to sense that its American airport engineer had an attitude. Goaded beyond diplomacy, he had remarked that an Afghan minister should come to him to learn how to build airports, and he in turn would go to the minister to learn how to drive a camel. He had expressed his suspicion that the Russians would be the sole beneficiaries of his efforts in Afghanistan. His economies—a diminished lighting system here, a narrowed highway there, smaller parking lots, a runway shortened to keep it out of a riverbed—were deeply resented.

The crunch came in 1962. Afghan officials refused to release U.S.-furnished manuals and materials for the aeronautical school, where the mission was training Afghans in everything from air traffic control to meteorology. When the engineer threatened to close the school, he was swiftly ordered from the country. By chance, a Congressional inspection party, in Kabul to see how the airport work was going, saved him—partly, no doubt, because one of the consultants was his old friend D.G. Richardson, who had hired him to build the strips at Flores, Puerto Barrios, and San Jose nearly three decades earlier.

Afghanistan took almost two years to complete, the task finally proving too interesting to abandon. Later there would be other assignments: Mexico, Chile, FAA schools, and a post-retirement stint as a consulting airport engineer. But I prefer to end my father's career in Afghanistan, ankle-deep in the dust and confusion of building airports where there had been none. A closing vignette: Late at night, a figure wearing a safari jacket, .25-caliber Beretta, and expensive Italian accordion leaves a party and steps into the streets of Kabul. Strolling through the market, he begins to play "Lady of Spain," "Twilight Time," and "Beer Barrel Polka" for the sleepy Afghans, who watch him, grinning. Then he vanishes into the night, the music fading to silence. His work is done: There are airports everywhere. —