OVER THE HUMP
PIONEERING CHINA'S AIR ROUTES

A 20-year Sino-American partnership became the Cold War's first corporate casualty when the China National Aviation Corporation ceased operations in 1949.

By Nancy Allison Wright
The China National Aviation Corporation (CNAC), and Harold M. Bixby, Pan American Far East vice president, peered anxiously out of the plane's windows, as upturned faces multiplied beneath them.

"The soldiers seem friendly enough," yelled Allison over the roar of the throbbing engine. His passengers nodded. He circled lower. A 30-foot wall bordered one end of the 1,000-by-400-foot landing strip, and telephone lines intersected the other. The citizens of Chengdu stood shoulder to shoulder. Allison dived toward the crowd several times, hoping to scare them enough so that a wide path would appear and he could land. The soldiers brandished their rifles at the crowd, clearing a runway. But no sooner had the Stinson's wheels touched down than the mob filled in the empty space in front of the plane. Fearing someone might stumble or be pushed into the whirling blade, Allison instantly cut the aircraft's engine. He ordered one soldier to keep the crowd back. The man acknowledged the command in good military fashion with a snappy salute, then presented arms with such alacrity that he thrust his bayonet through the Stinson's fabric-covered wing.

The postal commissioner whisked the Americans away in his car to the old marshal's military headquarters, where they had lunch. Afterward, the survey party departed Chengdu, their landing rights over Liu's territory happily secured.

That day marked yet another milestone in the turbulent history of what aviation writer William M. Leary, Jr., calls "one of the great pioneering ventures in the history of commercial aviation." From CNAC's inception in 1929 to its demise in 1949, China's first continually operating scheduled airline dominated the country's civil aviation. Flying Loening amphibians and Stinson monoplanes, CNAC pilots forged a civil air network along China's lifeline, the Yangtze River. Later on—using Sikorsky S-38s, Douglas Dolphins and DC-2s, among other aircraft—CNAC also linked the outlying cities of Beijing, Chengdu and Canton.

During World War II, the airline had pioneered the famous "Hump" routes over the Himalaya Mountains between Assam, India, and Kunming, China, airlifting supplies to Chinese President Chiang Kai-shek's beleaguered forces. Following CNAC's lead, the U.S. Army Air Forces launched its massive effort to move large amounts of freight over the Hump. After the war, CNAC expanded its passenger and freight operations until it exceeded its pre-war size tenfold. By 1949, the airline ranked as the world's 12th largest civil aviation company and the largest, by far, in East Asia.

CNAC, formerly named China Airways, owed its origins to Clement M. Keys, an aircraft visionary and the head of Curtiss-Wright Corporation, a giant aircraft complex encompassing 29 subsidiary and 18 affiliated companies. Keys dreamed of circling the world with aircraft, much as railroad barons of the late 1920s spanned the United States with steam-powered trains. To further that goal, he offered funding and aeronautical expertise to governments in Europe, South America and Asia that were eager to develop their own air transportation systems.

Of the countries that responded to Keys' offers, China showed enormous promise. The idea of establishing internal air routes appealed mightily to President Chiang Kai-shek, then seeking to solidify his central authority. An airline could unify China's
sprawling land mass (3,696,100 square miles). It could fly over bandits, who held up anything that moved on roads or waterways, and warlords, who victimized the railroads, confiscating mail. Air transportation could streamline the country’s commerce and trade. The 1,300-mile trip from Shanghai to Chengdu took 25 days by a combination of train, Yangtze steamer and wheelbarrow, ox cart or porter-carried sedan chair. By plane, a businessman could arrive after a two-day air flight during daylight hours.

Keys established a joint venture with Chiang’s Nationalist government for exclusive airmail rights for 10 years on the Yangtze River route. Under the agreement, signed in April 1929, the Chinese maintained 55 percent interest in the new company, the American partner 45 percent. CNAC did not exactly prosper in its first four years, and in 1933, after his company was buffeted by the aftermath of the 1929 stock market crash, Keys sold Curtiss-Wright’s share of the airline’s stock to Pan American Airlines.

When Allison arrived in Shanghai on October 4, 1929, as senior pilot for CNAC, the fledgling airline boasted five crated Loening C-2-H Air Yachts and a stretch of muddy ground, covered with high reeds, on Shanghai’s Whangpu River. To improve the field, coolies built a ramp from the river to solid ground. According to Allison, “Much shouting of hay-hoo and burning joss sticks seemed to help the job.”

They erected two bamboo-and-matting hangars that served well until they blew down in the year’s first typhoon. They transformed the shipping crates into a repair shop, tool shed and operations office—but to reach these facilities, airline personnel had to cross an army post, and the military refused to issue passes after 6 p.m. As Allison soon discovered, the perils of promoting flight in the ancient land of Cathay were as plentiful as dragons at a New Year’s Day parade.

Communication and navigation were also difficult. Only a few radio stations existed, and these were operated by the Chinese Air Force, using obsolete equipment. The lack of an adequate number of communication sites forced the new airline to establish and maintain its own radio and weather-reporting stations. Territorial maps for the area were also lacking; they were either nonexistent or inaccurate. “For the flight to Chengdu, I managed to find three maps,” Allison later recalled. “All were different and the land below us was different in many respects from all three.”

The Loening amphibians suited the Yangtze River route ideally, since the military controlled the country’s few airports and most were not available for commercial use. “When visibility became poor, we landed on the river and continued on the step at about 40 mph under reduced power,” said Allison. “When visibility improved, we simply opened the throttle and took off.”

Powered by a single 525-hp Pratt & Whitney Hornet engine, the Loening carried a payload of 1,000 pounds (six passengers) and cruised at 100 mph. The pilot and co-pilot sat side by side in an open cockpit above the enclosed cabin. On takeoff, a Loening captain had to dodge sampans, junks, freighters, passenger ships, gunboats and yachts plying the Whangpu. He stood on the rudder pedals, gripping the throttle and wheel with both hands while craning his neck to see between the exposed engine cylinders. According to pilot Moon Chin, this procedure often resulted in a rim of oil settling around his face.

The Loenings were not the last word in passenger comfort. Bixby described the early floatplanes: “On the takeoff, the water used to pour in around the doors, and in the air such was the ‘ventilation’ in those cabins that you had to tie your hat on.” Passengers were given cotton to plug their ears. Nevertheless, for their time, the floatplanes provided safe transportation. In 10 years of service, CNAC experienced only one fatal accident, when pilot Paul Baer clipped the mast of a junk on takeoff. Baer, his co-pilot and two passengers perished in the crash; two other passengers survived.

Passenger traffic was disappointing during the first few years. As Allison put it, “Most of the Chinese living along the Yangtze River had never seen an airplane before, so the appearance of these strange objects in the sky was an unending source of interest to some and a source of fear to most.” He credits the time he flew Madame Chiang into Shanghai after dark, during the Japanese attack in 1932, with the population’s gradual acceptance of air travel. “She stood behind the pilot’s seat and chat-
ted happily to me all the way,” recalled Allison. “After that passenger traffic increased steadily.”

Warlord revolts plagued Chiang’s coalition government in 1929. From time to time, the virulence of the civil war drove missionaries and other foreigners to flee to Shanghai for safety. One day Allison flew over a village, near Kuixiang (or Kuikiang) in Yunnan province, that was besieged by a 300-man bandit army. Many people lay sprawled on the ground, apparently having been shot, while others escaped in sampans to a lake south of the village. Flames engulfed the houses. “As I approached at fairly low altitude, the bandits ran for cover,” recalled the pilot. “A few minutes later, I landed at Kuixiang and immediately reported to the garrison commander that bandits were looting a village about 20 miles north of his station. He thanked me kindly for the information but nothing was ever done. Apparently, the commander felt the bandits were better men than his men.”

Bandits fired on a Loening months later near Shashi, a CNAC refueling stop in Hubei (or Hupeh) province. Although 17 slugs from a Thompson submachine gun perforated the hull of the aircraft and a splinter lodged in pilot Chilly Vaughn’s leg, the plane landed safely. Later, however, during the Sino-Japanese war, the airline suffered major losses.

Natural disasters also took their toll on the beleaguered Chinese people. During the devastating Yangtze flood of 1931, CNAC flew supplies into the stricken areas, conducted surveys and transported officials. Prominent among the visitors was Charles Lindbergh, who was employed at the time as a Pan Am consultant.

William Lindbergh and Allison were the first on hand in Hankou (or Hankow) to greet Lindbergh and his wife, Anne Morrow, on the last leg of their survey flight over the great-circle route to Asia. Allison flew Lindbergh over the flooded Yangtze basin. “One day I found it difficult to land the Loening because the river was so clogged with bodies and coffins,” Lindbergh told Allison, who noted that many of the villages on his route that were visible from the air one day disappeared the next, swallowed by the swirling waters.

CNAC’s future looked promising by 1933, but as usual, operations were fraught with problems. The airline expanded its route north to Beijing, flying Stinson Detroiders that had been acquired in an earlier merger with the Shanghai-Chengdu Air Mail Line, a competing carrier. Service to Guangzhou (or Canton) began in October using two Sikorsky S-38 amphibians. In a short time, however, one was lost in an accident and the other grounded. Both were replaced by Douglas Dolphin amphibians.

As Japan stepped up its harassment of China, the ravages of war on Chinese civilians defied description. On August 14, 1937, Allison watched, horrified, from the rooftop of Shanghai’s elegant Park Hotel when Chinese Air Force planes, swerving off course, bombed their own waterfront, killing thousands. Ironically, many of the people killed or injured were applauding what they thought would be a successful raid on the Japanese flagship Izumo, anchored in the harbor.

Chinese military officials demanded that CNAC take part in the war effort, transporting munitions and warriors. When Pan Am Vice President Bidby objected, explaining that the airline must remain commercial, Colonel Lem Wei-shing, CNAC’s managing director, commandeered several aircraft for military use and replaced the American pilots with Chinese military fliers. In response, Japanese authorities de-
clared the airline a belligerent force. The U.S. State Department, stressing the need for neutrality, forbade American participation in the war under penalty of fine and imprisonment.

Left with no option, Bixby withdrew the airline's American personnel. Allison became an adviser to the Nationalist government's Committee on Aeronautical Affairs, and the American pilots dispersed, many to Pan Am's South American division. Once under control of the Chinese military, airline operations ground to a halt. It took nearly a year of political maneuvering before Bond convinced the Nationalists to run the airline as a nonmilitary enterprise and persuaded Pan Am to participate again as partner. Finally, in the spring of 1938, CNAC resumed service, its new route determined by the dictates of the Sino-Japanese war. Using Chongqing (or protests about the attacks.

As Japan's offensive intensified, CNAC became China's aerial lifeline. On the night of October 24, Allison, flying a DC-2 for China's Ministry of Communications, attempted to evacuate the Chiangs from Hankou as Japanese troops advanced on the city. But soon after takeoff, the plane's electrical system failed, forcing him to return to Hankou. Flying blind, without landing or field lights, he managed to land safely, avoiding bombs that had been placed on the runway to destroy it before the Japanese arrived. With the government's approval, Allison prevailed upon CNAC to fly the stranded presidential party to safety.

CNAC maintained the Nationalist government's vital Chongqing and Hong Kong air corridor from 1939 until the Japanese conquered the colony in 1941. Japanese fighter planes were a constant threat along the 770-mile route, and the CNAC pilots knew that a forced landing meant capture. Rather than suspend service after the first Kweilin incident, the airline had its pilots use evasive tactics, flying in and out of the island only at night. Even then, CNAC canceled flights on clear nights. Cities along the way were darkened and radio communication restricted, but CNAC maintained air service without incident.

CNAC chief engineer Zigmund Soldinski awakened at 5:45 to the jangle of his telephone's incessant ring on the morning of December 8, 1941 (December 7 in the United States). The Japanese had attacked Pearl Harbor; by dawn, they would be over Hong Kong. No sooner had the first glow of daylight appeared than Japanese bombers struck Hong Kong's Kai Tak Airfield. By the time Soldinski arrived at the field, two CNAC DC-2s and three Curtiss Condors were enveloped in flames, and the Sikorsky Pan Am Clipper, a burning shell, was sinking at the dock.

Two Douglas DC-3s and one DC-2 had escaped destruction.

By the time Kowloon fell on December 12, CNAC had evacuated 275 people.
THE LAST DAYS OF CNAC

Anticipating Mao Tse-tung's Communist victory over Chiang Kai-shek's Nationalist forces, CNAC executives formulated a daring plan of survival in 1948. Given State Department approval, they would operate their airline within China for the Communist government. As Vice President Ernest M. Allison told a press conference, "Our loyalty lies with the company, regardless of ownership."

Pan Am President Juan Trippe enthusiastically supported the strategy. He felt certain his nearly two-decade-long association with CNAC would give Pan Am an advantage with the new government. At the time, he was competing fiercely with Northwest Airlines to be the first international carrier in mainland China after Mao's takeover of the government.

CNAC moved its base of operations to Hong Kong in December 1948. In June 1949, the Hong Kong government ordered CNAC to cease construction of its new maintenance facilities at Kai Tak Airport, ostensibly to make room for the Royal Air Force. In truth, local functionaries feared that, as Allison recalled, "CNAC might become a Communist cell in Hong Kong." British authorities advised him to relocate the airline in Taiwan. But CNAC's Chinese staff was worried about the safety of their families on the mainland if they were moved to Taiwan.

Trippe, Allison and others held out for a contract with Mao's government, although the U.S. State Department disapproved of American involvement in China's internal affairs. Then, on November 9, Chinese CNAC pilots loyal to Mao defected to the mainland, taking with them 10 CNAC craft. In response, the Hong Kong government impounded the remaining airplanes.

From Hong Kong in its three remaining planes, including top government officials and their families, CNAC directed its diminished fleet to the Chongqing-Lashio and Chongqing-Chengdu routes and initiated one flight a week to Calcutta. The airline's glory days lay ahead. New plans for expanded freight service would take CNAC into the war effort in a way no commercial airline had participated before, pioneering and participating in the world's first major airlift.

The Japanese began their Burma offensive in February 1942, intent on cutting off China's vital supply routes. Responding to the crisis, Bond proposed that CNAC, in conjunction with the U.S. Army Air Forces' Air Transport Command (ATC), undertake a massive cargo airlift between India and China. By crossing over the southern edge of the Himalaya Mountains, routes CNAC had pioneered more than a year before, they could maintain year-round flights from Assam, India, to Kunming in southwest China. President Franklin D. Roosevelt approved the plan, and in April CNAC began freight service over the dangerous Himalayan hump.

The ATC took charge of the entire Hump operation after CNAC's pioneering effort proved successful. From April 1942 to September 1945, CNAC and ATC pilots airlifted 650,000 tons of critical material to the Chinese and American forces in China, Burma and India. Of that total, CNAC transported about 114,500 tons of vital personnel and material. The airline also dropped supplies to Chinese and American ground forces, evacuated Chinese and British troops and supplied those constructing the Ledo Road, which connected with the Burma Road.

The United States provided CNAC with transport aircraft under the Lend-Lease program. CNAC received Douglas C-47s and a few C-53s, the military version of the DC-3. By 1945, the airline operated approximately 25 airplanes, including larger Curtiss C-46 Commandos.

CNAC filled its increasing demand for skilled and experienced pilots by drawing from flying personnel around the globe. Pilots who had served with the Royal Air Force, the Royal Canadian Air Force, the North Atlantic Ferry Command, U.S. Army Air Forces and the U.S. Navy signed on to fly over the Himalayas, as did 16 former pilots of the American Volunteer Group's "Flying Tigers," disbanded on July 4, 1942. Five elected to remain with General Claire L. Chennault in the USAAF.

As predicted, the 500-plus-mile routes over the world's most treacherous terrain were a pilot's nightmare. Both CNAC and ATC crews flew unheated,

N.A.W.

The airline's logo includes a Douglas DC-4, pride of the CNAC fleet after World War II (Nancy Allison Wright).

Sensing opportunity, General Claire Lee Chennault, founder of the Flying Tigers and president of Civil Air Transport, CNAC's former competitor, proposed that he and five other investors buy the airline from Chiang's Nationalist government. The deal would keep the 56-plane fleet away from possible ownership by the Communists, who Chennault felt would use the cargo planes to parachute Red Army troops into Taiwan. Chiang agreed to sell for a $4.5 million promissory note.

Trippe first learned that CNAC had been sold to Chennault when he read about it in his local newspaper. Trippe was puzzled that the airline could have been sold out from under him, especially when a clause in CNAC's contract stipulated that one partner could not sell without the other's approval. The contract also stated that the airline could not be sold to a private individual.

The State Department pressured Trippe to negotiate for the sale of Pan Am's 20 percent share. The department insisted that Chennault and his partners pay Pan Am cash. The negotiating team eventually settled on $1.25 million.

The partnership battled Hong Kong lawyers, intent on handing the impounded planes over to the Communists. Finally, 2½ years later, the British Privy Council of London awarded the aircraft to Chennault's group. They, in turn, sold the airplanes to aeronautical enterprises in the United States and abroad, including Zantop Air, a freight operation based in Detroit, Mich.
unpressurized and unarmed twin-engine cargo planes. (The ATC fleet also included several four-engine aircraft.) To avoid marauding Japanese fighters, they often flew at night, sought safety in the clouds or, in clear weather, set a course far north of their direct route, navigating between peaks 24,000 feet high. The weather was generally miserable. Polar air masses sweeping down across the Gobi Desert created violent blizzards.

Many of CNAC's 46 major accidents—25 crews were lost—were attributed to weather. And no storm more terrified pilots than the one survivors call the "storm from hell" or the "mother of all hump storms." CNAC pilot James M. Dalby took off from Dinjan, India, in a C-47 on January 6, 1945. Speeded along by a strong tail wind, he crossed the Hump via the high northern route, arriving at Suifu-Ipin, a village at the junction of the Yanglze and Ming rivers, 30 minutes ahead of schedule. Thinking he might need extra fuel to deal with strong head winds on the return flight, he refueled.

Dalby lifted off the grass runway into a clear blue sky at 10 a.m. He set his course west, over the northern Hump route, and climbed to 14,000 feet. It was a perfect day for visual flying through the mountain passes, a standard operating procedure on the northern route. But as he approached 24,000-foot Likiang mountain, conditions were changing. A thick fog blotted the ice-covered peaks and obscured sharp geological features. Hoping to fly under the fog through the passes, he descended into the Salween River Gorge, but the clouds obscured the passes.

He spiraled up to 24,000 feet from 14,000, hoping to climb above the weather. There, the ride smoothed out but the clouds remained. Dalby attempted to home in on the British-operated radio facility at Fort Hertz, in upper Burma. No luck. If he could not pick up a radio signal in a reasonable time, it meant that head winds were holding him in place—or worse—pushing him backward.

An experienced Hump pilot, Dalby knew that unusually strong head winds could cause him to use up his fuel before reaching India, or strong crosswinds could blow him north into the high Himalayas. To add to his troubles, at one point ice crystals bombarded his aircraft, creating so much static that both voice and navigational radio reception proved impossible.

Another hour passed, and Dalby still had no fix on his position. He had already made several course corrections to the south, but he again corrected his heading, this time 40 degrees off his original course. "Only a hurricane-force crosswind would have merited this correction," he later commented.

Four hours and 30 minutes had elapsed since his departure from Suifu-Ipin. Dalby announced to his crew, "We'll stay on this heading at 24,000 feet. When we run out of gas, we'll jump." But bailing out held scant appeal to Dalby and his crew, so he took a chance. Convinced he had passed the mountains, he dropped to 16,000 feet. There, he encountered heavy turbulence and extreme icing, but he later broke through the overcast. "I was absolutely horrified when I read our position," he said. Even with the 40-degree correction, he had been blown way north, below mountain peaks 20,000 feet high. He set a new course for Dinjan and landed safely, his fuel tanks nearly dry.

Dalby and his crew were fortunate. Meteorologists ranked the storm, bearing winds that surged from 50 to 120 mph in one hour, as the worst in India's recorded history. Two CNAC planes were lost that day and one the next morning. In all, it has been estimated, but never verified, that as many as 33 ATC planes went down during the course of Hump operations.

CNAC resumed full-time commercial operations at war's end. Allison returned to China as operations manager, eventually becoming a vice president. Under his guidance, the airline rose to a leading position among global carriers. Besides DC-3s and C-46s, their 56-plane fleet included four-engine Douglas DC-4s, which were plush for their day.

The airline operated twice-weekly service to San Francisco and had plans to inaugurate a route to Tokyo. A new contract, which Pan Am had renegotiated in 1945, reduced the American share in the company from 45 to 20 percent. The Communist takeover of China in 1949, however, sealed the airline's fate. Although Allison, Bond and Pan Am President Juan T. Trippe pressured the American government to allow them to operate the airline within China, the U.S. political tide had turned against American partnerships with the new Communist regime. On December 31, 1949, under pressure from the State Department, CNAC ceased operations.

During 20 years of operation, China National Aviation Corporation had launched China into the air age. "I'm proud of what we accomplished in China," Allison later recalled. "My years there were the finest of my life."