

MAY 1976

FAA WORLD

Service to Man in Flight



IF
GOD HAD
WANTED MAN
TO FLY...



EDITORIAL

A Golden Anniversary And a Promise

Ralph Noyes (center), aviation security specialist, and a security agent demonstrate a baggage X-ray system at Atlanta Airport for Administrator John McLucas.



Fifty years ago this month, the Federal government took on responsibility for civil aviation when President Coolidge signed the Air Commerce Act on May 20, 1926.

That year, the Aeronautics Branch was established in the Department of Commerce. By today's standards, its resources were meager—17 Airway Radio Stations, less than 100 air-strips, mostly unpaved, and a coast-to-coast string of light beacons to mark the air mail routes. But from these modest beginnings, there has evolved an airspace system unequalled anywhere in the world.

Those who manned the first Airway Radio Stations were a hardy and dedicated group, working dawn to dusk hours and often a seven-day week, building and repairing their own equipment. The nation is indeed fortunate that much of this sense of dedication has survived into our own era. Throughout the FAA, there is a professionalism and loyalty to the job that would make the early pioneers proud.

U.S. aviation's unquestioned preeminent position in the world today is due not only to technological development but to the men and women who maintain and operate the nation's airways. As a newcomer to FAA, I salute their initiative, their ingenuity, their enthusiasm, their devotion—a tradition of performance that is the hallmark of aviation's progress. I am confident that the achievement in air safety of the past 50 years is prologue to the accomplishments of FAA's men and women in the years ahead.

John L. McLucas
JOHN L. McLUCAS
Administrator

FAA WORLD



MAY 1976

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The cover:

Against a backdrop of other aerial designs of yesteryear that Doubting Thomases no doubt said wouldn't fly is the Heavy-lift Aerocrane, one of today's strange craft being experimentally certificated by FAA. The story on page 5 discusses some less-than-conventional experimental birds now in Flight Standards' mill.

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FEDERAL NOTEBOOK

HOW OCTOBER LOOKS

According to the Fiscal 1977 budget, General Schedule salary increases for 1976 are projected to be 3% to 5%. With last year's holding of increases to 5%, raises under the Federal Comparability Act of 1970 would mandate 11.5% this October. The President has said he intends to return to comparability in 1977 by giving Federal employees an 8.8% raise. ■ A bill to separate Congressional salary raises from those of Federal employees hasn't moved, so several House members have signed a discharge petition; it requires 218 signatures to bring it to the floor.

■ The Civil Service Commission has proposed replacing the five-step blue-collar wage system with a single step and changing night differentials--both designed to match prevailing rates.

MERIT REFORM BILL BOWS

Rep. David Henderson (NC) has introduced HR 12080 to strengthen the merit system and prohibit abuses of personnel laws and regulations. It would prohibit employees and officials from taking, recommending, processing or approving any personnel action based on other than merit; give CSC authority to enforce this rule and investigate violations; make each Federal agency head responsible by law for personnel management in his agency; and make it illegal for appointing officers to consider recommendations from members of Congress, elected state or local officials or officials of political parties. Another provision would take away the appeals process from CSC and give it to an independent board.

NICKING THE HEALTH PREMIUM

While the government's share of

health premiums averages 60% for the six major plans, most employees pay more than 40%. Rep. Richard White (Tex) has introduced HR 12275 which would average the two biggest plans, making the government pay at least 60% and bringing up to a 5% drop in the employee's share. ■ The Comptroller General has asked the CSC to prepare a single shopper's guide to the seven government-wide health insurance plans so direct comparisons could be made. Seven other pamphlets would cover more limited plans. Now, CSC issues 46 different brochures on health insurance.

KICKING THE 1% KICKER

Sen. James Buckley (NY) has introduced S 3134 to eliminate the 1% add-on to annuity raises.

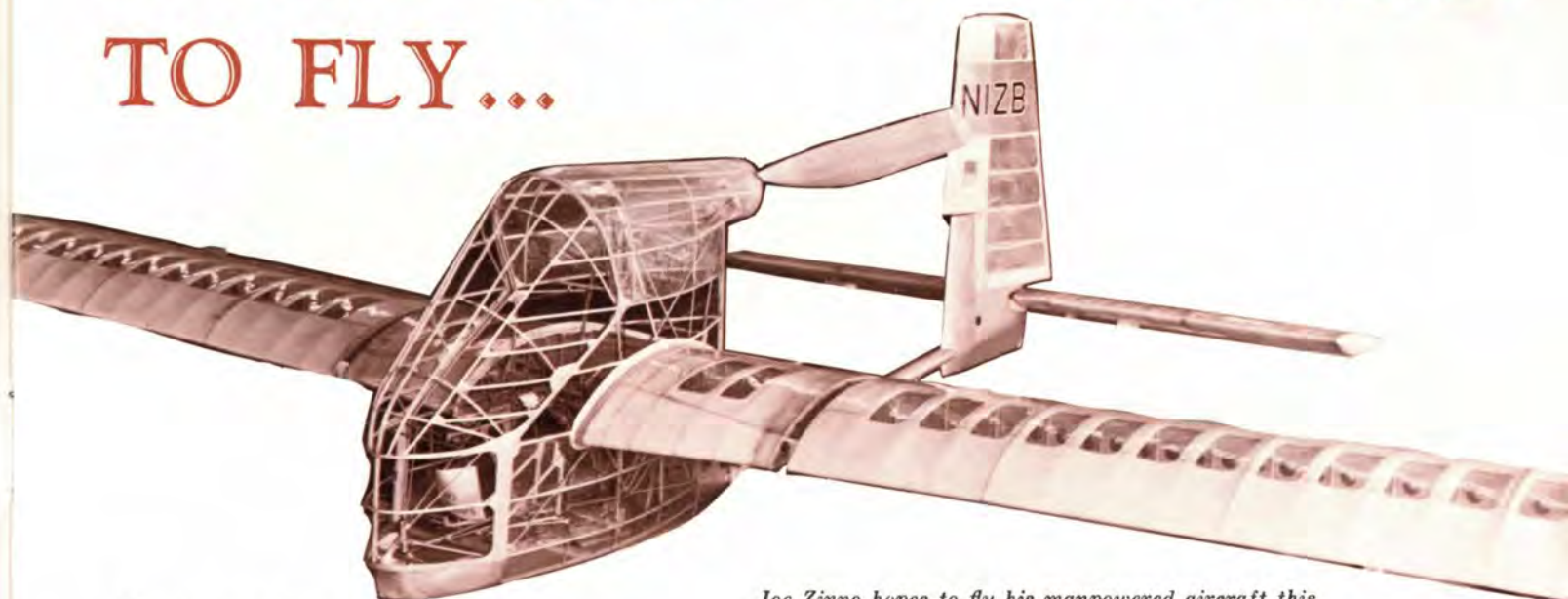
PROTECTION FOR IDEAS

The U.S. District Court for the Northern District of Illinois has ruled that the 1950 executive order requiring Federal employees to turn over their inventions to the government is unconstitutional. Agencies can still use employees' inventions without paying for them, but employees would be free to sell their inventions. Excluded are NASA employees and AEC employees now with ERDA. The government is expected to appeal.

DEFINITIONS

According to the National Taxpayers Union, we have in government the double dipper--a military retiree who holds a Federal job; double scooper--a Federal employee who has a spouse, dependent or other immediate relative on the Federal payroll; and dipper scooper--a double dipper who is also a double scooper, or, to put it another way, a double dipping double scooper.

IF GOD HAD WANTED MAN TO FLY...



Joe Zinno hopes to fly his manpowered aircraft this spring in his quest for a long-standing \$100,000 prize for the first successful manpowered flight.

Ray Morin (right) of the South Windsor, Conn., EMDO hands an experimental certificate to inventor-builder Joe Zinno of North Providence, R.I. In the background is Zinno's one-manpower aircraft.

A lead balloon? No, the FAA hasn't been asked to certificate a lead balloon, but a home-built flying submarine, that's a horse of a different color or a bird of a different breed. Ben Rock, chief of the Teterboro, N.J., Engineering and Manufacturing District Office (EMDO), was asked not long ago to certificate an amateur-built flying submarine.

In this case, the thing didn't get off the ground, or off the water, or out of the water. The project folded. The workmanship wasn't up to snuff. The tail, for instance, was held together with flattened tin cans--acceptable, perhaps, for a child's wagon but not so hot for an airworthy aircraft.

The pilot, when submerged, had to put his head into a bucket to breathe, and the spinning propeller almost brushed his legs. "Not very well thought out," was Ben's cautious comment. "But," he explained, "we went out and took a look at it. Part of our mission is to foster aviation, and we generally encourage amateur builders even when their projects are a little wild. After all, we would not have this aviation industry at all if it were not for two homebuilders... Orville and Wilbur Wright."



He went on to describe a man-powered plane he looked over recently. He didn't issue a certificate on this one, either, because the drive system was askew, but he did ask the pilot to run up his engine. He suggested that the inventor

pump for 20 minutes, which they both agreed was a reasonable time for a flight. But after three minutes, the powerplant came grinding to a stop. The problem: not mechanical failure, but lack of musclepower. So Ben sent the inventor

An early tilt-wing or control-wing flying boat, this plane developed into a successful experimental craft.

on his way, but he'll probably be back with a rebuilt drive system.

There's another manpowered aircraft that was certificated just recently by Ray Morin of the South Windsor, Conn., EMDO. Named the Olympian, the plane has a business-like, "can-do" look about it. With a wing span of 78 feet, it weighs only 150 pounds. Morin said that he thought builder Joe Zinno of North Providence, R.I., would be able to get the feather-weight plane off the ground.

Just before going to press, FAA WORLD learned that Morin was right. On April 21, 1976, the Olympian flew. Although it stayed airborne only five seconds and covered only 30 feet, Zinno has achieved a first and can boast holding an American record for manpowered flight. If he can fly it in a circle, he'll hold a world's record, and if he can fly a figure-8 course around two pylons a half a mile apart at least 10 feet off the ground, he stands to win a \$100,000 prize being offered by a British industrialist for the first successful man-powered flight.

And then there's the world's first fully redundant aircraft. If the engines, even all four of them, fail, the craft still flies merrily along. It's called Aerocrane and it's half balloon, half helicopter. Another of Ben Rock's projects, he says it is designed to lift heavy loads—in the 50-ton range.

But he speculates, it is still a long way from being completed. Right now, the builders—All American Engineering Co. in Wilmington, Del.—are experimenting with a scale model of the hybrid airship. The finished vehicle will be made up of a large, helium-filled sphere, 150 feet across, with four wings, each 112 feet long protruding from the equator. Turbine engines on each wing will turn propellers, and the whole contraption

The flying platform was first developed for the military, but a civilian version was also built and certificated . . . experimental. Built by De Lackner Helicopters of Mount Vernon, N.Y., the platform theoretically could be flown by a person without any experience as a pilot.

will spin at about 10 revolutions per minute. In this way, the blades or wings supply additional lift and determine the direction and speed of the contrivance. This idea might work out Ben suggested, but the operators will have to watch the wind.

Ben also issued an experimental certificate to the "control wing" plane flying in the Delaware Bay area. Inventor George Spratt has been working on this concept for 20 years or so, and he was recently commended for his contributions to aviation after his brainchild flew successfully.

But it was not always thus. He had his problems with the control-wing or tilt-wing conception. In 1960, Robert Kennedy, now with FAA Flight Standards at Headquarters, was testing the plane. In the process, he broke his back and broke the plane severely when he crashed into Chesapeake Bay.

Kennedy said that when he was flying the plane, he had faith in the idea, although he realized there were some greivous problems. He flew the plane about a dozen times,



but the flights lasted only seconds. In fact, he wasn't sure just how well the tilt-wing concept worked in a turn, because he never managed to turn the aircraft. And this, he observed, stringently limited operations, since he would have to fly all the way around the world to get back where he started.

Still, the control-wing plane is not dead. It is flying today. It incorporated a concept worth investigating. The idea is that control of the aircraft is simplified by eliminating the aileron, elevator and rudder; control is achieved by tilt-



The triple-hulled Aeron III was built in the hangar at Mercer County Airport in Trenton, N.J. Damaged during taxi tests, it never did get off the ground.

The Inflatoplane was a real innovation. The pilot just blew the thing up, hopped in and went for a spin, zipping along at 74 miles an hour at up to 10,000 feet.



ing the wing back and forth and sideways. It works. As Ben says, it's a fun plane.

At least one plane that actually flew fit snugly into a box the size of a card table. This was the Inflatoplane built by Goodyear in the late 1950s. It was certificated as experimental by the Dayton, Ohio, EMDO, and fly it did—up to 10,000 feet at a searing 74 miles an hour.

The test pilot was none other than Richard Ulm, currently of the Northwest Region Flight Standards Division. Dick had quite an exciting time with this unique

bird. During dive tests, he pulled the inflated wings off the inflated body, and then he departed . . . with a parachute.

But a month later he flew the tests again. The Inflatoplane was a successful experiment. In fact it was quite an airplane.

Think of this: Here was a plane that could be packed away in the back of a station wagon, weighed only 210 pounds empty, could land on skis on water or snow and could cavort about in the ozones for as much as eight hours at a clip; after it was inflated with

a small, gasoline-engine-driven pump, it could take off and land in less than 300 feet. But it could also spring a leak, and if the engine quit it had a tendency to deflate. Deflated it wouldn't fly, which wasn't too good if it happened in the air. Ten were built for the military, and that was that. (One of the original Inflatoplanes was donated to the Smithsonian Air and Space Museum a few years ago.)

The Aeron III, built in Trenton, N.J., in the mid 60s, may be the last of the dirigibles. At least, it was the only rigid, lighter-than-air craft to be built since pre-World War II German craftsmen fabricated the giant Graf Zeppelin II. The Graf II was 803 feet long, while the triple-hulled Aeron measured only 83 feet from bow to stern. The Graf II flew; the Aeron III did not. Another of Rock's projects, he explains that the airship was blown over during taxi tests and was so badly damaged that it was later totaled. But it was certificated experimental, and experimental it was.

The agency has certificated—remember, experimental—channel-wing planes which have propellers in half barrels; flying platforms; and man-carrying, powered box kites; as well as helicopters with the rotor under the fuselage. The latter flew well, but there was a problem: Passengers and crew had to wait until the rotor stopped before alighting, lest they lose their legs.

All of these vehicles were or are being certificated, but FAA inspectors are cautious when dealing with the really bizarre. The experimental certificate is carefully restricted to prevent the would-be Icaruses from destroying people, property or, for that matter, themselves.

So, what good is a lead balloon? What good is a newborn baby? Who knows: but at least FAA gives new ideas a chance to grow up and be counted.

—By Theodore Maher



His Father's Footsteps Fit Well

Which Joe Tymczyszyn do you know? The one who has an air transport rating and is an aeronautical engineer or the one who has an air transport rating and is an aeronautical engineer? The one who works for the FAA or the one who works for the FAA? The father or the son?

It probably depends on where you work and how long you've been with the agency. If you've been with the FAA a long time, or if you work in the Western region, you probably know the father. If you're new and work at headquarters, it's more likely that you know the son.

Joe Tymczyszyn, Sr. (it's pronounced Tim-chizzin), is a veteran FAA test pilot and aeronautical engineer who virtually wrote the book for the agency's testing of the first big jets when they were being certificated. Now he is with the

Special Projects and Advanced Planning Office in the Western region.

Joe Tymczyszyn, Jr., is an engineer in the Air Carrier Division of the Flight Standards Office at headquarters. Young Tymczyszyn, who is on the division's Flight Technical Program Staff, had a choice of six job offers when he left the Massachusetts Institute of Technology two and half years ago with a PhD in aerospace engineering. He admits that parental influence had a lot to do with his accepting the FAA offer.

In fact, his father's influence also had a lot to do with his choice of a career.

"There was never a time when I didn't want to be a pilot and an aeronautical engineer.

"I never went through the stage of wanting to be a fireman or a policeman. I always wanted to be

just like him."

The father concedes that he did influence his son "in the sense that I taught him what I knew just as if I had been a barber or a butcher—I would have taught him how to cut hair or cut meat.

"But I didn't push it on him. I just made it available. It was up to him what he wanted to do with it."

Making it available included teaching young Joe and his four younger brothers to fly. In Joe Junior's case, the lessons started when he was 12. As a result he had piled up 200 hours of dual instruction by the time he reached 16, the minimum legal age for making his first solo flight. And he had a pilot's license before he had a driver's license.

Not long after, the young pilot attracted the attention of the old *Saturday Evening Post*, which published an article on him as part of a series on "People on the Way Up." It was written by Joseph Laitin, then a free-lance writer and now the FAA's Assistant Administrator for Public Affairs.

According to the *Post* article, a test pilot friend of his father's allowed young Joe to taxi a DC-8. He didn't handle the jet very well, and the test pilot said, "Look, kid, it's just like driving a car." "But I can't drive a car," Joe replied.

Young Tymczyszyn has since learned to drive a car, and he also has logged 2,500 hours in the air.

The article was illustrated with a picture of young Joe flying his father's single-seat, open-cockpit Buhl "Bull Pup" aircraft (above), a plane that was designed as the general-aviation aircraft of the 1930's. The plane is 44 years old now and still flying. Joe Junior flew it again when he was out in California last December.

"It's one of the few planes," he says, "that you don't have to memorize a lot of speeds for. It takes off, climbs, cruises, descends and lands at 85 miles an hour."

—By Fred Farrar

Air traffic controllers now let their fingers do their talking to computers. But tomorrow, the Hal of "2001" may be the reality, with controllers talking to the computer, using voice commands instead of keyboards to retrieve and update flight-plan data. Right now, however, there are no plans for the computer to talk back.

At the moment, the only place in FAA that they're talking to a computer is at NAFEC. Engineering psychologist Dr. Donald W. Connolly is working on a project to determine if voice commands will work as well as pushbuttons. They must be, for a special demonstration in the enroute lab was just held on April 28 for headquarters officials.

"The whole thing is possible, Connolly explains, "because a single word can now be converted into a specific digital image that can be stored in a computer."

He has worked on the project since May of last year, when he obtained the heart of his experimental system—a spoken-word recognizer from a commercial manufacturer. Not much bigger than a hi-fi receiver, the recognizer is a voice-actuated mini-computer.

When a controller speaks into the microphone, the recognizer processes the voice commands through a complex but compact computer program developed by its manufacturer. The machine can respond on a CRT, a print-out or on tape.

As the fact of the recognizer's existence would indicate, voice-actuated computers are in operation in industry, but their use is in extremely simple functions, compared to ATC tasks.

"The potential of voice command is enormous," Connolly says. "It could enable the controller to get better, more accurate information faster and with a lot less effort, eliminating keypunching. If the controller can talk to the computer through a microphone, he can keep his attention focused on the display."



Engineering psychologist Dr. Donald Connolly talks to a computer at NAFEC, and the computer understands and provides a variety of readouts.

He Talks to a Computer

Assisted by psychology technician Florence Champion, Connolly has analyzed one of the keyboard languages that controllers use and found that a vocabulary of fewer than 100 words or expressions are used in most messages.

Among other things, they learned that there are fewer than 10 "parts of speech" in the keyboard language of a flight-data controller—like message types, flight identities and geographic locations—and that 95 percent of all keypunching by controllers can be categorized into 15 basic message types. Among these, for example, are amend, report altitude, handoff and departure.

Having developed this information, Connolly started tests last August using 10 voices, most of them controllers, "to train the machine" to recognize the word list that controllers use.

The recognizer must be "trained" by each person who will use it by repeating each word in the language 10 times. It is usually necessary to rework a small number of words to get nearly perfect recognition. The images of each controller's language are stored on magnetic tape.

Connolly noted that a cold or allergy could change the sound of a controller's voice, and the computer might not understand or respond to certain words under those circumstances. The solution, he says, is to retrain the computer to compensate.

On the other hand, Connolly points out that the computer isn't perfect. "You can't run words together. You have to hesitate briefly between words. It's not yet fully possible to speak out at a natural rate of conversational speed."

He adds, "However, we get 99.5 percent accuracy on the 15 message types," noting that this is more accurate than keyboard entry, where it's not hard to hit the wrong key.

Depending on the results of the current tests, the psychologist says, voice entry may be tested further in realistic air traffic situations in the simulation lab at NAFEC.

"Some day in the distant future," he says, "as the technology and understanding of continuous speech develops, it may be possible to update computer files by abstracting essential information directly from ground-to-air communications. It's not at all beyond belief."

—By Frank McHugh

FACES and PLACES



SECTOR CITED—AF Sector manager Robert Goldman (second from left) is congratulated by DOT Secrep Bayard Foster for an award for the John F. Kennedy Airport Sector from the Region 2 N.Y. Field Coordination Group. Looking on are Eastern Region Director Duane Freer (left) and DOT Under Secretary John Barnum. The award was "in recognition of performance and teamwork as an exemplary member of the transportation community."



OUTSTANDING—Northwest Region aerospace engineer Gerry Mack (center) was named "Federal Employee of the Year—1975" by the Seattle Federal Executive Board. Among those present for the ceremonies were Region Director C. B. Walk, Jr., Joan Bergy, chairwoman of the Seattle FEB and other Federal officials.

WEST OF SUEZ—A contingent of Egyptian aviation officials visited the Central Region to get a view of how it's done here. Discussing Airway Facilities activities are (left to right) Naim Adbou Salem, Director General, Technical Sector; Dr. Fouad Morsi, Vice President of Civil Aviation; Gamal El-Din Shehab, ATC Controller General; John Ranspot, AF Maintenance Operations Branch, FAA Central Region; Ibrahim Ali, Civil Engineering Controller General; and Haroun Shaheen, Chief, Electronic Engineering.



THE VOICE OF FAA ON TV—Administrator John McLucas (left) discusses user fees, AWANS, safety reporting and the cost-allocation study with (left to right) Robert Stanfield, executive editor of AOPA Pilot; moderator Dee Mosteller; and Robert Parke, editor and publisher of Flying, for the Public Broadcasting series "Aviation Weather." Two segments were videotaped at headquarters by the Maryland Center for Public Broadcasting for showing in April and May. The second segment will be broadcast on May 6 and 7.



CAREER ORIENTATION—Honolulu GADO inspector James Forsythe escorts Kailua High School students on a tour of flight schools at Honolulu International Airport. It's part of a learning project called Community Quest, in which students extend the classroom into 44 business and government "learning stations." (For a story on a similar program, see page 16.)
Photo by George Miyachi



IDEA MAN—John S. Nigro (second from right), Systems Research and Development Service, stands with his family at ceremonies honoring him as Suggestor of the Year for 1975. Three agencies have picked up his idea for uniform standards for scientific and technical reports. Present for the award presentation were (left to right) Robert Wedan, Acting Director, SRDS; Associate Administrator for Engineering and Development Jeff Cochran; former Deputy Administrator James Dow and Administrator John McLucas.



EIN PROSIT—For his active promotion of aviation, Chicago-based ABC-TV anchorman and pilot Joel Daly (left) was recently made a "Red Baron" by Great Lakes Region public affairs officer Neal Callahan. Daly also received all the privileges attendant on the certificate, whatever those happen to be.
Photo by William Pitchford



FIVE WITH ONE BLOW—Oklahoma City controller Eugene Traynor (right) is congratulated by Southwest Region Director Henry Newman after becoming the first FAA controller to win the Air Force Communications Service "Aircraft Save Award" for his simultaneous flight assist for five Air Force fighters.



JUST A MOMENT, PLEASE—At the new Portland FSS in Hillsboro, Ore., assistant chief Bob Hogan handles a call over a new FAA-leased integrated voice communications system. Instead of keying for briefings, ATC interphone, intercom, emergency and airport direct lines, the specialist gets immediate handling of ATC interphone lines with automatic distribution in proper sequence of incoming briefing calls or automatic storage of them if the briefers are busy. He also receives visual and audible signals of all time-critical calls.

FAA had its beginnings 50 years ago this month. Its genesis was provided by Pres. Calvin Coolidge when he signed the landmark Air Commerce Act into law on May 20, 1926, propelling the Federal government into the business of regulating and fostering civil aviation. To carry out these new responsibilities, the Aeronautics Branch was created in the Department of Commerce under an Assistant Secretary, with authority to designate and establish airways; establish, operate and maintain aids to air navigation; arrange for research and development to improve such aids; license pilots; issue airworthiness certificates for aircraft and major aircraft components; and investigate accidents. This is how it all came to pass. . . .

The Birth of Air Regulation

8 MONTHS THAT CHANGED AVIATION

In late afternoon on Sept. 3, 1926, the U.S. Navy's rigid airship *Shenandoah* broke up in flight during a severe storm over Ava, Ohio, and crumbled to earth like a wounded bird. Fourteen of its 43-man crew, including its commander, Zachary Lansdowne, perished in the accident.

Just three days earlier, a twin-engine Navy flying boat disappeared on what was to have been the first flight between the West Coast and Hawaii. Although the

airplane was found 10 days later, its crew none the worse for wear, everyone believed for a period of a week that the nation had suffered twin aviation disasters.

The public outcry was immediate and often strident, with leading newspapers and publications joining the chorus of criticism against military aviation policies and aviation in general. But the sharpest attack came from Col. Billy Mitchell, stripped of his Brigadier's star by the Army for past criticisms and smarting in exile in San Antonio, Tex.

"These accidents," Mitchell charged in a blistering nine-page statement released to the press on September 5, "are the direct result of the incompetency, criminal negligence and almost treasonable administration of the National Defense by the Navy and War Departments."

Pres. Calvin Coolidge acted

swiftly and decisively. He appointed a nine-member board under the direction of his old friend and Amherst classmate, Dwight Morrow, to study "the best means of developing and applying aircraft in national defense." He also ordered a courts marital for Billy Mitchell.

The regulation of aviation had been an intensely discussed and much-debated question in the Congress in the years following the end of the First World War, with many like Billy Mitchell favoring a system patterned after the British Air Ministry, which would have jurisdiction over both civil and military flying. From 1918 to 1925, there were no less than 26 Congressional probes of aviation, and innumerable bills were introduced in both houses in what proved to be a vain effort to bring order to the nation's skies.

Aviation was still in its infancy

in 1925, with surplus World War I aircraft like the Curtiss JN-4H "Jennies," which could be purchased for as little as \$300, comprising much of the civil fleet. "For the most part, people thought of flying as somewhere between a sport and a sideshow," was the observation of William P. McCracken, a Chicago lawyer and former military aviator, who was destined to become the first Assistant Secretary of Commerce for Aeronautics.

Moreover, aviation was an undisciplined infant with no Federal regulations covering the certification of aircraft or airmen and no rules or procedures governing the use of the airspace. As one newspaper editor of the time commented, "Any would-be birdman can throw together a flying machine and soar skyward with passengers who are oblivious to the first aerial law laid down by Sir Isaac Newton."

At the same time, the airplane was finding increasing commercial



The way it was when aviation was in its infancy and the Federal government began regulating aviation: In 1927, an operator mans an air/ground radio telephone position (top) in an air mail radio station like this one at Iowa City, Iowa (left) to serve the U.S. Post Office's transcontinental air route. The Douglas M-4 (above) was one of the mainstays of the Post Office fleet.

application, although "airline" travel was still a sometimes-thing and far from a profitable operation. But the airplane was involved in such ventures as aerial advertising (including skywriting which was developed by an Englishman in 1922), crop dusting and aerial survey work. In addition, there was considerable illegal activity in this Prohibition Era.

One aviation source went so far as to claim that it was the illegal liquor traffic "that held up aviation's pants" during the early 1920s. And another maintained that aerial rum-running had an important educational impact in opening the eyes of many potential investors to the "great possibilities for legitimate commercial flying."

Without a doubt, however, the airmail service was the most successful aviation enterprise of the time. Started in 1918 with a Washington-New York route, it quickly expanded across the country. Beginning in July 1924 with the lighting of the last segment of the transcontinental route, airmail service was conducted on a regular 24-hour, day-night schedule. During the next 12 months, airmail pilots flew 2.5 million miles, carrying 9.3 million pieces of mail.

Even more impressive was the safety record of the airmail service. In flying some 7.9 million miles between 1922 and 1925, it suffered only 10 fatalities, or one fatality for every 789,000 miles flown.

Compared with these figures, the safety record of aviation as a whole made flying seem like the risky business it often was. In 1925, 83 people lost their lives in air crashes in the U.S., a disturbingly high figure, given the limited flight activity of the times. During the five-year period 1921-1925, the death toll was 354.

The need to improve flight safety and instill public confidence in air

transportation was the principal argument for Federal regulation of aviation. The aviation industry itself was one of the strongest advocates of Federal action, because it believed that flying could not develop into a viable transportation system without some form of regulation.

Among those arguing for such controls was Orville Wright. "I believe the examination and licensing of every pilot who engages in the transportation of passengers or merchandise for pay should be required," said the world's first aviator. "I also believe that proper precautions must be taken to insure the safe condition of the planes so used."

It was in this atmosphere that the Morrow Board convened in September 1925 with the aim of developing a national aviation policy that President Coolidge could send to Congress. The President's preference for the separation of civil and military aviation was well known, and the composition of the board—eight Republicans and a lone Democrat—seemed tailor-made to recommend such a solution.

The Morrow Board sat for eight weeks, taking testimony from 99 witnesses. Its report, released on December 2, was exactly what the President wanted. The Board rejected the concept of a single department for all aviation and recommended the establishment of a Bureau of Air Navigation in the Commerce Department, headed by an Assistant Secretary for Aeronautics, to govern civil flying. It also recommended the upgrading of the military air arms with the creation of Assistant Secretary for Aeronautics posts in both the Navy and War departments.

Coolidge transmitted the Morrow Report to Congress with an unqualified endorsement and asked that its recommendations be implemented. The Senate responded with uncommon speed in passing a bill

on December 16 that incorporated the gist of the Administration's proposal—just eight days after it was introduced.

But House action lagged, and it took that body until April 12, 1926, to pass a measure that differed from the Senate bill in a number of important respects. Most of these differences involved the question of states rights and whether the Federal Government was to control all aviation or just that portion involved in interstate commerce.

The matter was then handed over to the House-Senate Conference, which enlisted the aid of the National Advisory Committee for Aeronautics to resolve the outstanding issues. The compromise finally accepted by both sides limited Federal certification or licensing authority to those aircraft and airmen engaged in interstate commerce. However, Federal air traffic rules and procedures were made applicable to everyone using the airways.

Both the House and Senate adopted the conference report on May 13, and one week later—on May 20—President Coolidge signed the Air Commerce Act of 1926 into law.

The new legislation was widely hailed in the national press. A writer for the magazine *U.S. Air Service* called it "the first great step for genuine advancement of commercial aeronautics in America." And the *N.Y. Times* talked about the Act "blazing the way" to a U.S. commercial aviation system.

Characteristically, Calvin Coolidge kept his own counsel and avoided superlatives, although the Air Commerce Act was primarily the result of his own efforts and a testament to his political skills. Indeed, the Act itself was perhaps the only genuine legislative achievement of his administration.



Suitably attired for the climate, John Hopkins, chief of Airport Planning, San Francisco ADO, meets Salim Bin Nassir Al Busaidi, Oman's Director General of Civil Aviation.

TO OMAN AND BACK

FAA jobs can take you anywhere. When it's to the Middle East in the winter, it's a real bonus, for temperatures are in the low eighties.

John (Les) Hopkins, chief of Airport Planning, San Francisco Airport District Office, got the chance to spend two and a half months last winter in the Sultanate of Oman, which is at the southeast end of the Arabian peninsula.

Oman had formerly requested and gotten aviation technical assistance from FAA in airport planning, pilot certification, navigational aids and communications facilities, reimbursing the U.S. for the personnel expenses. Then, John Hopkins was sent to work on a five-year airport development program and compatible land-use-planning around Seeb International Airport.

Hopkins is now back in San Francisco, and it's a good thing, too. Summer temperatures in Oman hit 130 degrees!

SMALL WORLD

FOR HEAVEN'S SAKE . . . Remember the best-selling book and popular motion picture that came out after World War II called, "God Is My Co-Pilot"? Well, FAA has just certificated a commuter airline in Florida that goes the author of that volume one better. Commutaire International Airways Inc. lists God as the chairman of its board of directors and uses a dove as its corporate logo. It's not a put-on at all but reflects the convictions of the deeply religious people who organized the company and credit the Good Lord for their success. The new carrier will be operating nine-passenger planes between Miami, Fort Lauderdale, Boca Raton, West Palm Beach and Key Largo, and we would like to wish them "God Speed."

THE ODD COUPLE . . . There is a pilot in Montana who claims a pheasant has fallen in love with his airplane. Clyde Frederickson, who owns an aviation service at Polson Airport, said he first thought the bird was angry and looking for a fight when it started following his airplane. But later, watching the cock pheasant preen and strut around his green-and-white craft, he decided an entirely different emotion was involved. Frederickson said the pheasant always takes off right after him and hangs off the left wing until left behind. When Frederickson returns, the bird is right there waiting for him. "Small World" isn't sure what you'd get if you mated a pheasant with a single-engine airplane, but almost certainly FAA would be called upon to certificate it. (See "If God Had Wanted Men To Fly . . ." on page 5.)

BYE BYE BYRDIE . . . Normally, a going-away party wouldn't rate a mention in a high-class column like this. However, we were intrigued by an item in a Western Region *Intercom* about a farewell bash for a controller transferring from Chino, Calif., to Lewisburg, W. Va. Actually, it was the controller's name that caught our eye—Edsell Ford Byrd. You don't run across a handle like that every day. Ed says his father named him after the son of the late Henry Ford because of his admiration for the famous auto maker. Apart from the misspelling of Edsel, the name has been a burden to Ed, especially since the Edsel car proved to be one of America's all-time great lemons. "I often wished he'd named me something else," said Byrd, who drives a Chrysler himself. "Sometimes, I've even thought of having it changed . . . to something like Chrysler Plymouth Byrd."

CAREER EDUCATION ATTRACTS TOMORROW'S PROFESSIONALS

Geography, the weather and the properties of the air may be less than inspiring when students can learn about them only in class from textbooks. But let them be taught by pilots and other aviation specialists or seafaring people and put the students on the scene, then these prosaic subjects become fascinating and even fun.

That's the philosophy behind the newest of the innovative high school programs in aviation education in which FAA is actively involved. The idea combines a full traditional curriculum with career-orientation studies and activities in the aerospace and marine fields. This stimulates the students to achieve in the traditional subjects.

Randall Junior-Senior High School in Washington, D.C., follows this concept first developed by August Martin High School in the New York City school system. Randall opened the program last summer with nearly 100 ninth and tenth-grade students enrolled in RAMS — Randall Aerospace/Marine Science Program. Marine science is used as a complementary occupational focus.

As in the August Martin model, RAMS students are exposed to all types of aviation/aerospace personnel and work environments in both civil and military settings. They become acquainted with pilots, aerospace engineers, aircraft mechanics, airport managers and support staff, medical personnel, avionics technicians, aircraft builders and airline personnel.

Since 1971, August Martin High



Lloyd Haines, star of the TV show "Room 222" and a well known pilot and aviation enthusiast, conveys the excitement of flying to August Martin High School students.

School has offered more than 300 students aviation training, along with the basic curriculum, through the cooperation of FAA personnel at John F. Kennedy International Airport and other Eastern Region facilities, plus commercial airlines, the State University at Farmingdale, the New York Aviation Development Council, the military and mechanics, flight instructors and private pilots.

In both the Randall and August Martin cases, these diverse contacts bring new learning experiences outside the classroom, as well as in. The Randall students make field trips to the Aeronautical Engineering Labs at the University

of Maryland, the NASA Langley Research Center, Andrews AFB, Washington National Airport and the Smithsonian National Air and Space Museum, to name a few.

The students receive ground school training with FBOs and exposure to airline training of mechanics and flight attendants.

At Washington National Airport, they pursue environmental studies in noise abatement.

Under the guidance of two pilots, each of 14 students at a time develops a VFR cross-country flight plan from Manassas, Va., to Culpepper to Orange County Airport and back to Manassas Airport. Then each student is required to

preflight his aircraft under the direction of a flight instructor, run through the starting checklist, taxi, perform radio checks and lift off.

Extensive career counseling is an important part of their career education. However, "the aim is not to chart the student's future; rather, it's to encourage him or her to include aviation/aerospace or marine science occupations in the possible career choices," says Randall program director Paul L. Shackelford.

Randall's location in Southwest Washington, D.C., near the Federal

Tillman Frizzel (left), Randall industrial arts instructor, guides students in the marine science option of the RAMS program in boat-model construction.



In one of many field excursions, students in the RAMS program are shown maintenance procedures on Nan-1 conducted by FAA personnel at Hangar 6, Washington National.



complex, several airports, the Potomac River and several military installations, is ideal for career-orientation experiences designed to take advantage of community resources. More than 90 private and Federal and local government organizations provide personnel, equipment, materials, facilities and teacher training. The program is funded through the D.C. public schools and the Office of Education, HEW.

In addition to staff support and speakers—like Bill Broadwater, Airspace and AT Rules Division chief—and its facilities at the Leesburg ARTCC and Washington National, the FAA provides materials like aeronautical charts.

Through the Washington Technical Institute, a D.C. college, the students are exposed to the A&P mechanics program at the school's Hangar 10 facility at Washington National.

The National Transportation Safety Board supplied a former Presidential pilot as a speaker on accident evaluation at Dulles International Airport.

For students electing the marine science option, Adm. Paul Engle, Director of the Naval Audit Service, provides materials and loans personnel for instruction. The stu-

dents visit the Navy museum at the Washington Navy Yard and the Navy Research Lab. The Department of Interior arranges visits to the lightship "Chesapeake," tugboats to take water samples and sailboats for instruction. The Metropolitan Harbor Police classroom on the Potomac is being used for teaching seamanship.

Even parents find PTA meetings less routine when they're held on aircraft or ships and include tours.

Student response to the RAMS and August Martin approach is reflected in tenth-grader Kenneth Nelson's comments: "I've never enjoyed learning more, and I think there's a place in aviation for me."

"The RAMS program has raised student achievement levels and produced a sharp decrease in student absenteeism," points out Charles L. Dobson, aviation education specialist in the Office of General Aviation, who has been instrumental in developing the RAMS program. "We believe the RAMS approach can be expanded to other schools in other cities and FAA regions. It's an excellent vehicle for reaching young people, for finding talented young people for industry and government, and for just helping youth learn and find some direction."

—By Brenda Hull

Explaining preflight procedures to Randall students over a chart table is visiting pilot Charles L. Dobson, Office of General Aviation specialist in aviation education.



DIRECT LINE



Q Are developmental controllers authorized to monitor another developmental after being checked out on the position being worked? Often such trainees are the sharpest controllers in the facility.

A Normally, journeymen controllers are responsible for monitoring and training developmental controllers. However, when the workload does not permit this, developmental controllers who have attained qualification on a particular position are expected to train and monitor non-qualified specialists. The importance of maintaining both a viable training program and continued full-performance-level proficiency is of paramount importance to the air traffic control system. Simply, it is the policy of the Air Traffic Service that all qualified ATCSs perform OJT instruction for non-position-qualified personnel. The first-level supervisor determines who should give the necessary instruction, depending on the known capability of the trainee and the instructor.

Q Is it legal for an FSS chief to sell commercial products to his employees at the facility? Is it legal for a journeyman to solicit for a real estate agency while on duty? If not, what do you do?

A Assuming that the chief would derive personal gain from the sales—that is, they are not part of an authorized charity drive—both of the questioned activities are specifically prohibited in an FAA facility by Para. 29, Order 3750.4, Conduct and Discipline. An employee who becomes aware of any such activity should report it to the next higher level of supervision.

Q During 1974, due to short staffing, we were not permitted to use all of our scheduled annual leave. The unused annual leave was converted to "R" time. We were told to use our "R" time before taking any annual leave in 1975. During the last week of 1975, I was told that we have two years in which to use the "R" time. What's the official word?

A We assume that by "R" time, you mean annual leave that was restored instead of being forfeited. This leave, which is kept in a separate leave account from your regular annual leave, must be used within two years, at the end of which it is permanently forfeited. There is no requirement or agency policy that says you have to use the "R" time first. It's possible that such a policy could

work to your disadvantage, since it might result in your forfeiting some of your annual leave that can't be carried over into a second year. The key point is that both the employee and his supervisor share the responsibility for seeing that all leave is scheduled and used so that neither regular annual leave nor restored annual leave is forfeited. For more information, see the FAA handbook, Absence and Leave, 3600.4, Chapter 2, Annual Leave—Para. 15e, Annual Leave Scheduled in Advance, Para. 15 g, Separate Leave Account, and Para. 15 h, Time Limit for Use of Restored Annual Leave—or contact your regional personnel management division.

Q I have 20 years of creditable service as an air traffic controller, but I am not 50 years of age. If I left FAA before I became 50 years of age, would I be eligible for early retirement at age 50 with another government agency?

A Yes. Public Law 92-297 provides that "an employee who is voluntarily or involuntarily separated from the service, except by removal for cause on charges of misconduct or delinquency, after completing 25 years of service as an air traffic controller, or after becoming 50 years of age and completing 20 years of service as an air traffic controller, is entitled to an annuity." This entitlement is effective even when an employee leaves his/her position as a controller to accept a position in another government agency.

Q Handbook 7210.3C, Para. 522, states that the return trip for all travel shall be started within 48 hours from the scheduled arrival time at the outbound destination, except as extended below, etc. Does this mean the entire 48-hour period is to be duty time? Is a 48-hour duty-time period allowed when travel is combined with regular days off and/or annual leave taken at the outbound destination?

A Both questions refer to days spent at the outbound destination of an SF-160 flight during which neither the outbound nor the return flight occurs. On those days, paycard entries must be either annual leave or regular day off. There is no on-duty status because no specific duties were assigned nor was a travel order issued.

Q In our facility—a Level I non-radar tower/approach control—the journeyman grade is GS-10. When a proposed radar installation is certified

and the controllers are using radar separation, will the journeymen be upgraded to GS-11 immediately, or will Level II non-radar approach control traffic requirements need to be fulfilled first? Right now, there are no Level I radar facilities in this region, and the only information we've gotten on the upgrade has been unofficial.

A Normally, when your facility is certified as a RAPCON facility, the non-radar approach-control grade-level criteria would not apply, since the facility is no longer non-radar. The ATC position classification standard, GS-2152, describes the performance characteristics and work situation for positions with radar approach control responsibilities. There is an agreement between the Civil Service Commission and the Department of Transportation establishing a position classification moratorium, effective March 8, 1976. It will remain in effect until the issuance of a revised GS-2152 position classification standard, because the CSC is conducting an occupational study and plans to have a new standard prepared by the latter part of this year. The moratorium agreement suspends position classification activity relating to all positions in this series. As a result, FAA can't change the grade levels in this series for the duration.

Q Please define working supervisor. Can he assume any position he chooses and remain there, when it means that the remaining journeymen must remain in one position the entire shift?

A The term "working supervisor" has become a common term, but it is not officially recognized nor defined. An assistant chief has the responsibility for conducting operations on a specific shift. In an FSS, he must either operate or observe a control position for at least one hour each week. This doesn't restrict an assistant chief from working any position or working a position for a longer time period.

Q Explain minimum staffing. We are a Level II FSS with nine working journeymen and authorized 11. We were recently cut back to two supervisors. There are many times that we are so short that the telephones continue to ring and go unanswered. Although we are not providing the service to the flying public we should, we have been told that there is no overtime money left, that overtime is just not authorized and that as long as there is one man here to answer the phone that is sufficient.

A It's a fact that user service demands on many FSSs exceed the capabilities of the system. Several tests are underway to define and implement newer methods to provide our services, including the use of automation techniques. Meanwhile, staffing and money are under continuing constraints. Minimum staffing could be defined as that necessary to staff each operating position during peak periods. Not having this luxury, minimum staffing could very well be one specialist per watch.

Q How do we maintain position priority in an FSS? The first priority is the in-flight position. However, in some facilities, the specialist is also required to provide pilot weather briefings via telephone when the occasion arises. This could result in the in-flight specialist missing a radio emergency when he becomes involved in an extensive pilot weather briefing. I have asked this question in previous facilities but have yet to receive a definitive answer.

A The priority of duties is established to aid you in making judgmental decisions. It is reasonable to assume that when a higher priority duty "calls," it will be honored even at the expense of a lesser one. In the situation you gave, it would be appropriate to advise the telephone caller that you have a call on the radio and to please standby or offer to call him or her back. Pilots generally understand that their peers in the air take precedence over those on the ground.

Is there something bugging you? Something you don't understand? Tell it to "Direct Line." We don't want your name unless you want to give it, but we do need to know your region. We want your query, your comment, your idea—with specifics, so that a specific answer can be provided. All will be answered here, in the bulletin-board supplement and/or by mail if you provide an address.

Better two-way communication in "Direct Line" is what it's all about.

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A RAMS student gets the feel of the cockpit in the Administrator's Jetstar. This familiarization with the instrumentation is designed to reinforce his classroom instruction. See story on page 16.

