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Research Highlights

As part of its continuing research on survivable accidents, the FAA Technical Center has been looking at ways to make aircraft evacuation slides safer.

The investigation was spurred by an accident in which the slides burst too

Front cover: First runner-up prize winner in the "FAA Facilities/Equipment" category of the Employee Photo Contest was Gary Glenisky of the Engineering Section, Airway Facilities Division, Northwest Region, for his shot of the VHF direction-finding antenna at Burley Municipal Airport, Burley, Idaho.

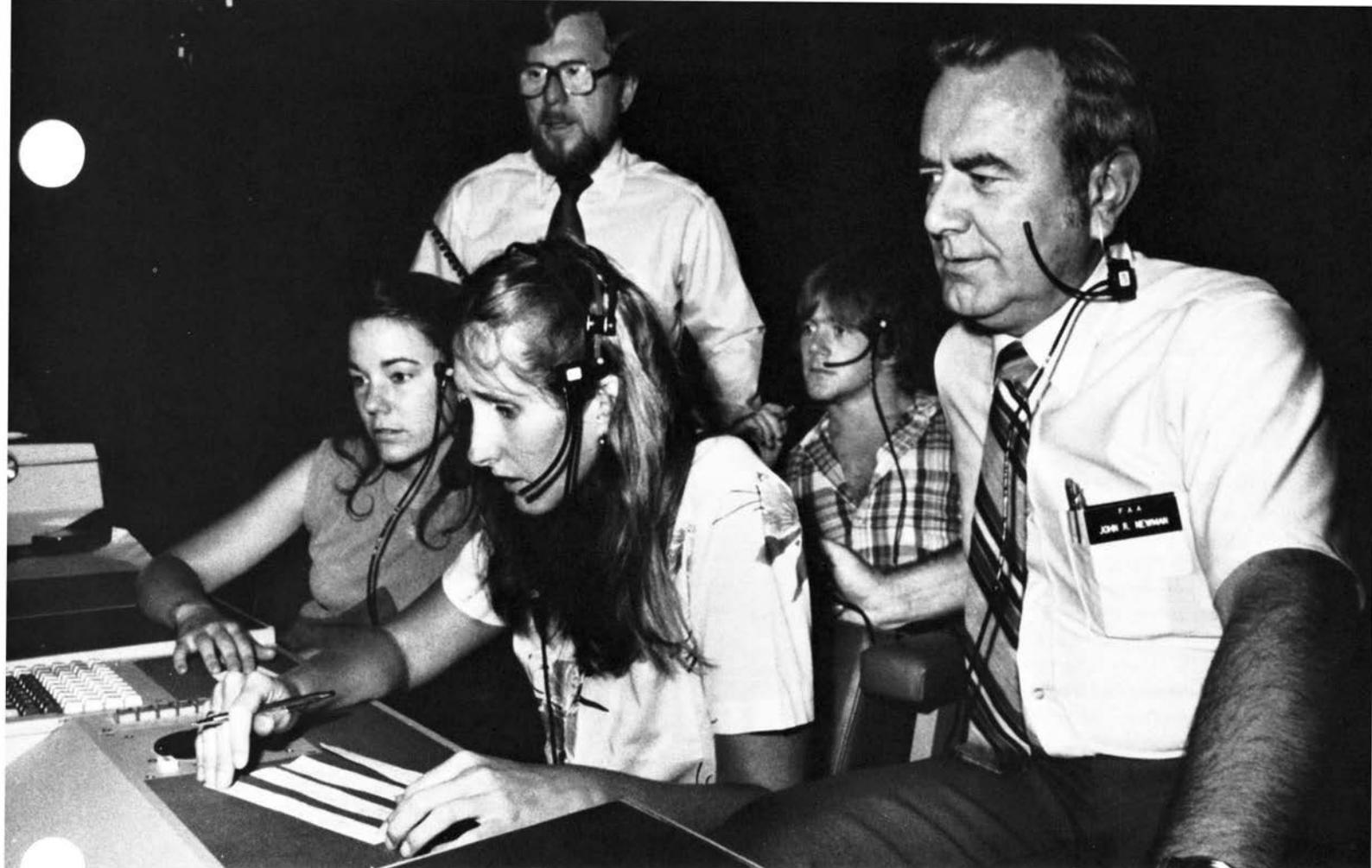
Back cover: Called the world's busiest single-runway airport in the world, Meigs Field—on Chicago's Lake Michigan waterfront—set two new operations records last fall. The city's attempt to close the airport was recently thwarted by the FAA.

Photo by Neal Callahan

soon, even though they had not been touched by fire.

After full-scale and laboratory tests, technicians found that the application of an aluminized coating doubled the heat resistance of the uncoated slide material now in use. The full-scale tests used a 30-foot fuel pool fire, with the slides positioned 15 to 20 feet away. The laboratory test method is a new one that researchers consider more accurate and hope to have accredited as a standard test method by the American Society for Testing and Materials (ASTM).

In addition, tests were conducted on materials for slides, including neoprene-coated nylon, urethane-coated nylon and Kevlar, with and without aluminized paint. In that order, the materials increasingly resisted bursting from radiant heat, but Kevlar is undergoing additional scrutiny. Although it appears to be able to withstand the heat better, it also loses tensile strength when packed tightly for storage aboard aircraft. ■



We've found that those who have done well in non-radar control may not necessarily do well in radar training."

Students usually have worked only a couple of weeks at their home stations before being sent to the FAA Academy. But when the doors open into the laboratories, the combination of low interior lighting and banks of visual display screens are like the scene back home.

"These laboratories look just like the control rooms in the field, right down to the carpet on the floor," said Bing Kelly, chief of the RTF En Route Instructional Unit. Jack Smith, chief of the Terminal Section, Air Traffic Branch, added, "You could unplug one of the scopes and move it to, say, Fort Worth, and it would match the rest of the equipment down there. We think this kind of training at the academy will shorten on-the-job training when the students go back to their home stations."

Student Susan Hale appears apprehensive as she works "traffic" at the Aeronautical Center's Radar Training Facility. Observing are Larry Bicknell (standing), chief of the RTF Section, students Theresa Reingruber and Kevin Sullivan and FAA instructor John Newman.

Photo by Bob Mikkelsen

The primary realism, however, comes from what they see on the screens, Kelly pointed out. "We put a group of journeyman controllers through here as a test before we started training students. Talk about real! They started to get butterflies and broke out in sweat from tension about 10 minutes into the problem."

When class is in session, Kelly has 32 students at the consoles in each of the enroute laboratories, with 22 instructors monitoring their progress. Targets moving across the screens are directed by the students' verbal instructions to the ghost pilots, who respond in standard radio communication terminology from their work area in another room. The ghost pilots push the buttons on their own consoles, and the computer changes the course of individual targets at whatever speed a particular model of airplane would take to execute such maneuvers.

Ghost pilots make course corrections and give acknowledgments for five or six planes in the problems at a time, and students can have 12 targets on their scope at a time.

For the most part, the students are dealing with a phantom airport in central Oklahoma that strongly resembles Will Rogers World Airport on the opposite side of the runway from the FAA complex. Training problems include activity around a satellite airport and Duke Air Force Base, a mythical field named for actor John Wayne.

Mike Tener says he never had been inside an airplane before he was hired as one of the 27 ghost pilots, and a lot of training has gone into making him and the others sound like actual pilots in the earphones of the students. "We taught the ghost pilots the controls, and then we had to train them to sound professional," Kelly said. "It would be easy for students to pick up bad phraseology, so that's something we have to keep after with the ghost pilots."

A study by Dr. James Boone, psycho-

metrician at the Civil Aeromedical Institute, showed that handicapped persons could perform the technically exacting work. Some of the ghost pilots have masters degrees and haven't always been handicapped. Many have crippling conditions, while others suffer from heart problems, seizures and blindness. Nevertheless, ghost pilot Tom Gagnon became so intrigued with air traffic control work that he has applied for a job in the Southwest Region.

While the students and teaching aides master pilot jargon, someone occasionally backslides when carried away during a training problem. Barb Farmer, a legally-blind ghost pilot, recalls one student who notified her urgently, "United 421, oh my God, do you have traffic on your right!" Another student who despaired at a crucial moment in a complex problem solemnly led his ghost pilots through the Lord's Prayer.

"These ghost pilots have gotten to the point that they can pick it up when a student controller is under stress," Smith said. "We are very proud of what they have accomplished. While we were training them, they taught us a lot, too."

The \$2.6-million Radar Training Facility consists of two en route labs, two terminal labs, six classrooms, a computer room, offices and utility areas. Other buildings at the Aeronautical Center may be more imposing, but none matches its efficiency. Scarcely a breath of air enters



Jack Smith, chief of the Terminal Section, Air Traffic Branch, "supervises" instructor Charles Whitehair operating a console in the terminal lab.

Photo by Don Tullous

Designed to have a pleasing appearance not unlike other buildings at the Aeronautical Center, the RTF is windowless and partially insulated by an earthen berm in the name of energy efficiency.

Photo by Don Tullous

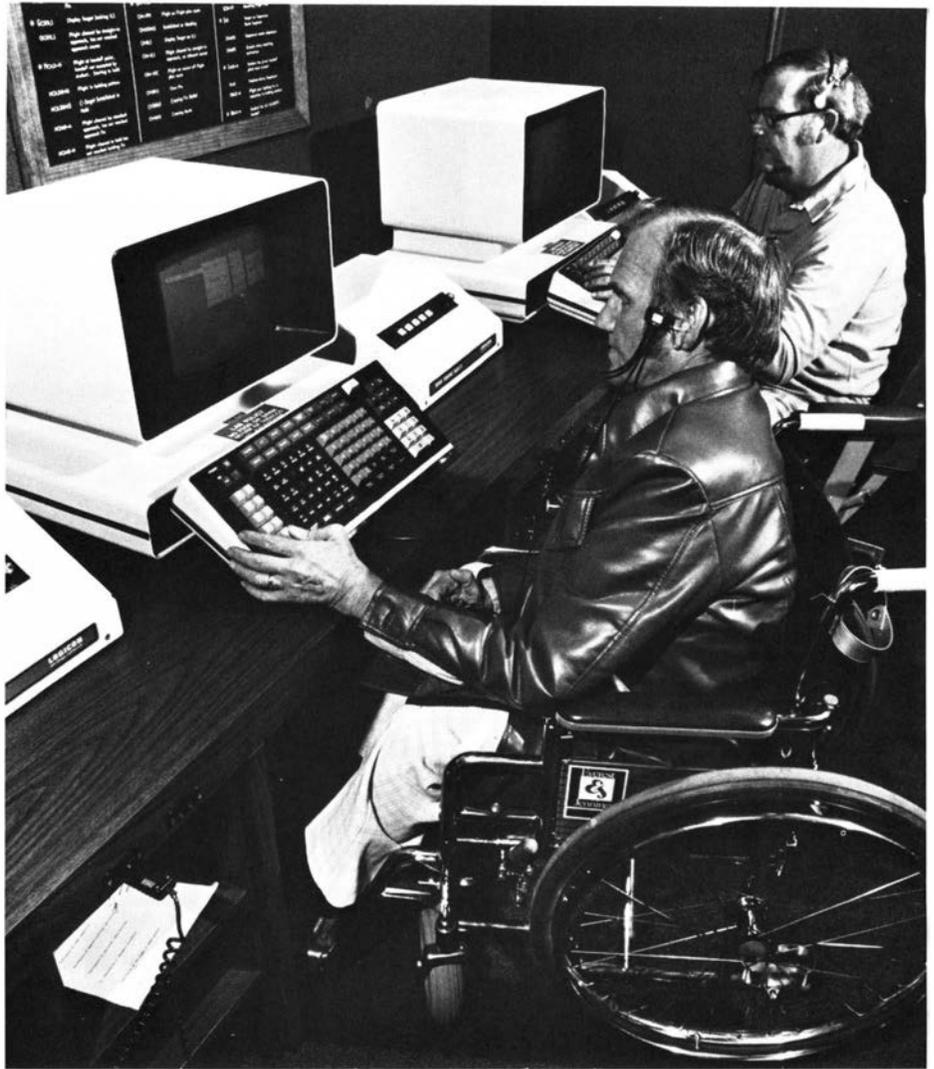
or escapes the structure without a purpose.

"We want a minimum amount of gain or loss of heat in this building," explained Charles Wall, chief of the Engineering Branch of the Facility Support Division. "I think it's as efficient as any building in the country today."

In this building without windows, everything is insulated and double caulked under an extra-thick roof. It is also forti-

Ghost pilots Frank Ruth (foreground) and Sterlin Parks navigate their "aircraft," whose identity and location are depicted on the video terminal.

Photo by Don Tullous



fied against the elements with a six-foot-high embankment of earth against the ground floor. Slightly positive air pressure inside keeps outside air from entering through the air-lock doorways. Even the pipes and cables are brought through the walls with special links which keep out the outside air. The building is designed to maintain 72 degrees inside by conserving interior heat and keeping out exterior heat. Federal guidelines limiting buildings to 80 degrees in summer and 65 degrees in winter arbitrarily keep the system from achieving full efficiency.

"If the air outside is 55 degrees or colder, I use the outside air for air conditioning," Wall said. "We can use outside air all winter and well into spring. That means the chillers, the most expensive part of the system, are idle most of the time. In actual practice, we generate a lot of heat with the computers and other equipment in the building, so the heaters are seldom used. Individual rooms have sensors, and if a room heats up, I exhaust more heat from that room."

Individual rooms also are equipped with their own heaters so that a minor change in one cold room won't turn on the heat all over the building, he pointed out.

"Until 1973, energy was so cheap that it actually didn't pay to put in all this insulation," Wall continued. "But the way this building is constructed, we can operate it for half what it costs to operate other buildings at the center. "The heavy roof did cost more to put on, but it will save enough through reduced heat loss to pay for itself in three years. It is so well insulated that it wouldn't even pick up on

an infrared photograph. The administration building next door, however, would shine like a Christmas tree."

The Radar Training Facility is equipped with a Halon gas fire-control system, which could stop a blaze or even an explosion without damage to the delicate electronics in the laboratories and computer room.

"If we had to put out a fire there with water, it would destroy the system," Wall said. "When the Halon gas system in those rooms is working, it allows people to breathe but won't let the fire burn. If a fire is detected, all that the occupants of the room have to do is hit the fire button. That cuts the power and stops air movement in the building by cutting the air-conditioning. It all happens in a few seconds."

Besides smoke detectors, the laboratories and computer room also are equipped with heat-rise detectors to catch things early. "We do have a sprinkler

system in the classrooms," Wall continued, "but water damage wouldn't be catastrophic there. The floors are built so water will go down the stairwalls and elevator shafts without damaging the electronics. Even though the Halon would save us from water damage, it wouldn't be without cost. With Halon costing \$6.00 a pound, it would cost \$30,000 to recharge the system."

Later, Wall says, the RTF building may be modified for even greater efficiency. That heavy concrete roof would be an ideal place for solar collectors. Also, heat and cold may be stored one day in the storage tanks for fire-emergency water. ■

Alaskan Region

■ **Norman R. Weeks**, reinstated as team supervisor at the Fairbanks Flight Service Station, formerly of the Nome FSS.

Central Region

■ **Michael J. Brown**, team supervisor at the Kansas City ARTCC.

■ **Irvin W. Hoffman**, deputy chief of the Wichita, Kan., Tower, from the Evaluation and Automation Branch, Air Traffic Division.

■ **William A. Horstman**, chief of the Omaha, Neb., Airway Facilities Sector Field Office, from the AF Branch at the FAA Academy.

■ **Terence J. Jackson**, team supervisor at the Kansas City ARTCC, from the Air Traffic Division.

■ **Stanley G. Johnston**, team supervisor at the Sioux City, Iowa, Tower, from the Syracuse, N.Y., Tower.

■ **Gloria J. Kirby**, team supervisor at the Kansas City International Tower.

Eastern Region

■ **Vito J. Borrello**, deputy chief of the Buffalo, N.Y., Tower.

■ **Paul A. Cornell**, team supervisor at the Buffalo Tower.

■ **Michael J. Garay**, assistant chief at the LaGuardia, N.Y., Tower.

■ **William L. Glaize**, team supervisor at the Lynchburg, Va., Tower, from the Charleston, W. Va., Tower.

■ **John D. Phillips**, team supervisor at the Westchester County, N.Y., Tower, from the New York Common IFR Room.

Great Lakes Region

■ **Gerald R. Akers**, chief of the Indianapolis, Ind., Hub Airway Facilities Sector Field Office.

■ **Harold N. Beeler**, team supervisor at the Cleveland, Ohio, ARTCC.

■ **Garland M. Coffman**, assistant chief at the Cleveland ARTCC.

■ **Bruce A. Delamarter**, team supervisor at the Pontiac, Mich., Tower, from the Grand Rapids, Mich., Tower.

■ **Roscoe L. Ewalt**, chief of the Milwaukee, Wis., Flight Standards District Office, from the Maintenance Branch, Flight Standards Division.

■ **Walter Fern**, chief of the South Bend, Ind., Flight Service Station, from the Dayton, Ohio, FSS.

■ **Donald J. Gisselman**, team supervisor at the Chicago Midway Tower.

■ **Michael A. Hagen**, assistant systems engineer at the Minneapolis, Minn., ARTCC Airway Facilities Sector.

■ **Donald E. Kaptonak**, chief of the Chicago Midway AF Sector Field Office.

■ **Harlan J. Knudson**, team supervisor at the Dayton, Ohio, Flight Service Station.

■ **Stuart D. Lewis**, team supervisor at the Milwaukee FSS, from the Regional Communications Center.

■ **Ronald M. Pochman**, team supervisor at the Hibbing, Minn., FSS, from the Flight Service Section, FAA Academy.

■ **Arnold W. Rosenow**, systems engineer at the Minneapolis ARTCC AF Sector.

■ **Robert C. Rutkoske**, team supervisor at the Rockford, Ill., Tower.

■ **Walter J. Schmanke, Jr.**, team supervisor at the Akron-Canton, Ohio, Tower, from the Cleveland Hopkins Tower.

■ **Billy E. Sullivan**, chief of the Evansville, Ind., AF Sector Field Office, from the Grand Rapids, Mich., AF Sector Field Office.

■ **Jack L. Taulbee**, chief of the Jackson, Mich., Flight Service Station, from the West Chicago FSS.

■ **Ronald P. Wegrzyn**, team supervisor at the Chicago O'Hare Tower, from the Air Traffic Branch, FAA Academy.

■ **George F. Wetmore**, team supervisor at the Muskegon, Mich., Tower, from the Dayton Tower.

■ **Richard Willis**, watch supervisor at the Cleveland, Ohio, AF Sector.

■ **Leo E. Wolbers**, team supervisor at the Cleveland ARTCC.

■ **Kenneth F. Wolfe**, team supervisor at the Cleveland ARTCC, now permanent.

New England Region

■ **Donald R. Dunlap**, team supervisor at the Westfield, Mass., Tower.

■ **James A. Kosicki**, assistant chief at the Boston ARTCC, from the Miami, Fla., ARTCC.

■ **Robert L. Pierce**, deputy chief of the Quonset, R.I., TRACON, from the Bradley Tower, Windsor Locks, Conn.

Northwest Region

■ **Richard A. Davenport**, chief of the Seattle Aircraft Evaluation Group, Flight Standards Division.

■ **Raymond A. Massie**, chief of the Felts Field Tower, Spokane, Wash., from the Spokane International Tower.

■ **Rex K. Pugmire**, chief of the Pocatello, Ida., Tower, from the Boise, Ida., Tower.

Pacific-Asia Region

■ **Gary K. Nakagawa**, chief of the Honolulu Airworthiness District Office, from the Honolulu Engineering and Manufacturing District Office.

Rocky Mountain Region

■ **Vernon L. Drake**, assistant systems engineer at the Denver ARTCC Airway Facilities Sector, from the Salt Lake City, Utah, ARTCC.

■ **George A. Heckert**, team supervisor at the Huron, S.D., Flight Service Station, from the Flight Service Section, FAA Academy.

Southern Region

■ **Christopher R. Blum**, team supervisor at the Miami ARTCC.

■ **Louis V. Brown**, chief of the Alma, Ga., Flight Service Station, from the Miami IFSS.

■ **Jennings L. Carter**, team supervisor at the Atlanta, Ga., International Airport.

■ **Donald P. Doane**, deputy chief of the Jacksonville, Fla., Tower.

■ **Percell Duckett**, proficiency development evaluation officer at the Miami ARTCC Airway Facilities Sector.

■ **Joselin Garcia**, team supervisor at the Miami ARTCC.

■ **Harold L. Goforth**, PDEO at the Memphis, Tenn., ARTCC AF Sector.

■ **Curtis W. Goswick**, team supervisor at the Opa Locka, Fla, Tower, from the Atlanta Tower.

■ **James A. Harben**, team supervisor at the Charlotte, N.C., Tower.

■ **James T. Inman**, team supervisor at the Charleston, S.C., Tower.

■ **Billy F. Jeffers**, deputy chief of the Atlanta Tower, from the Operations Branch, Air Traffic Division.

■ **James D. Jeffords**, chief of the Rocky Mount, N.C., FSS, from the Elizabeth City, N.C., FSS.

■ **Victor M. Lopez**, team supervisor at the Key West, Fla., FSS.

■ **Harland C. Lore**, deputy chief of the Pensacola, Fla., Tower.

■ **James A. Miceli**, team supervisor at the Greater Cincinnati Tower in Covington, Ky.

■ **John M. Penney**, chief of the Key West FSS, from the Miami IFSS.

■ **Bobby L. Perkinson**, chief of the Raleigh, N.C., AF Sector Field Office, from the Memphis Hub AF Sector.

Southwest Region

■ **Dagoberto Cisneros, Jr.**, team supervisor at the El Paso, Tex., Flight Service Station, from the Truth or Consequences, N.M., FSS.

■ **Ronald A. Hatherley**, systems engineer at the Houston, Tex., ARTCC Airway Facilities Sector.

■ **William F. May**, team supervisor at the Dallas-Fort Worth, Tex., Tower.

■ **William H. Miller**, team supervisor at the Stinson Field Tower, San Antonio, Tex.

■ **Joyce A. Sexton**, team supervisor at the Fort Worth ARTCC.

■ **Leo S. Tanner**, deputy chief at the Dallas-Fort Worth Tower.

Western Region

■ **Fred T. Berry, Jr.**, assistant chief at the Palmdale, Calif., Tower, from the El Monte, Calif., Tower.

■ **Frederick D. Cooley**, assistant chief at the Lancaster, Calif., Flight Service Station, from the Los Angeles FSS.

■ **Ronald K. Downie**, team supervisor at the Los Angeles ARTCC.

■ **Donald E. Fowler**, chief of the Coast TRACON, El Toro MCAS, Calif., from the Burbank, Calif., Tower.

■ **Frank B. Garcia**, assistant chief at the Imperial, Calif., FSS, from the Las Vegas, Nev., FSS.

■ **Charles H. Hall**, assistant chief at the Oakland, Calif., TRACON.

■ **Michael Liversidge**, chief of the Douglas, Ariz., FSS, from the Tucson, Ariz., FSS.

■ **Douglas M. McCready**, deputy chief of the Oakland TRACON.

■ **Ralph A. Hiller**, team supervisor at the Brackett Field Tower, La Verne, Calif., from the Edwards AFB RAPCON, Calif.

■ **Ralph K. Odenwald**, chief of the Orange County Tower, Santa Ana, Calif., from the Plans and Program Branch, Air Traffic Division.

■ **John F. O'Leary III**, deputy chief of the Ontario, Calif., TRACON, from the Los Angeles TRACON.

■ **Robert W. Young**, assistant manager of the Sacramento, Calif., AF Sector, from the Maintenance Operations Branch, Airway Facilities Division.

The item listed for the Rocky Mountain Region in the January issue for Charles R. Moore was in error. Mr. Moore had been in a training status at the time and is now retired.

By Thomas S. Hook

Acting chief of Headquarters' Public Inquiry Center, he is the author of two books on the U.S. Navy's rigid airships.



An Outsider's Insight

Controllers' Spouses Find Plugging-in Helpful

"I can hear Luis when he comes in," said Claudia Gonzalez, wife of 37-year-old air traffic controller Luis Gonzalez of the Nashville, Tenn., Metro Tower. "He takes his coat off, he'll sigh, and I know it's been a busy day."

At times, her husband—who trained with the Air Force in Thailand and has 13 years with the FAA (seven at Nashville)—won't say much about his day; but maybe at bedtime he will suddenly tell her about an incident at work.

"Other times, after supper, he will want to graphically go back over things that happened—aircraft types, sequence he had them in—to sort it out in his mind," said Claudia. Her father is a check-pilot for Eastern Airlines, and she understands how the mixture of general aviation and airline planes at Nashville can lead to problems.

Claudia and other wives, however, couldn't really grasp their husbands' need for daily periods of "unwinding" until seven of them recently visited the tower to "plug-in" a headset for an entire shift.

Nashville controller Galyon (pronounced Gaylen) Northcutt had heard of a similar wives' group-visitation program at Tampa and suggested to his boss, tower chief Joseph P. Maye, that it be done with individual visits at Nashville.

"Lots of women don't know what their husbands do—he goes to work and talks to airplanes and that's it," said Northcutt.

"I jumped at the chance to visit," said Phyllis Northcutt. "I gained a whole new understanding of the things controllers have to contend with, and I know why Galyon sometimes sits quietly at home after work, unwinding."

Chief Maye approved scheduling tower visits and picked October when the children were in school for starting. Unofficial "den mother" Maggie Hoffman, the tower's evaluation and proficiency development specialist, set up the schedule so that no more than two wives visited on any one day. Hoffman knows the tower like the back of her hand, having been "on the boards" there for 29 years and training others for an additional nine years.

Each wife reported to Hoffman in the trailer near the tower used for training. There, on her assigned day, each wife was issued a headset and briefed over coffee and doughnuts on the facility's operating procedure.

"This facility changes controller positions every hour—a local option," explained Hoffman. "So the girls simply rotated with them as their husbands worked both in the tower and the TRACON."

Barbara Sory had helped husband Bob study for his basic controller certification in the Navy but had never had the opportunity to really observe what a controller does. On her visit, they worked his shift through all tower positions, as well as departure and approach control in the TRACON.

"We got quite busy," said Bob Sory. "There were things she didn't realize we had to do to keep the aircraft separated."

Now Barbara Sory understands better—despite 15 years as a controller's wife—



Evaluation and proficiency development specialist Margaret Hoffman of the Nashville, Tenn., Metro Tower welcomes Ginger Wright to a day of "work" monitoring husband Jerry at all positions.

Despite Bob Sory's 15 years as a controller, this was wife Barbara's first opportunity to learn what his job is really like. Here, she watches him work the local controller's position.



why she has been regularly telling the children not to "attack" daddy when he comes in.

"It's been constantly changing shift work during Bob's 12 years here," said Barbara. "I've adjusted my life to his schedule and type of life."

Sory has explained to his wife that the skill required in controlling is like a continuous game of chess, which he happens to enjoy. Each move he makes with an aircraft is going to relate to another move

"When I sat down beside him in the radar room, I was amazed at how they have to coordinate with each other and keep up with their own airspace," Cheryl said.

Relating each dot on the radar to a plane with people aboard and the awesome responsibility of separating the traffic correctly lest a crash result gave Cheryl Gill a keener understanding of the stress involved.

Debbie Schumacher, who monitored husband Charles in five positions while the 34-year old veteran of six years worked his shift, understands his desire for quiet at the end of work.

"When you spend eight hours talking to airplanes, you don't need chit-chat when you first get home," said Charley Schumacher. "Sometimes the adrenalin is still flowing, so Debbie's taught our three youngsters to let me get into something physical before I invest time with them."

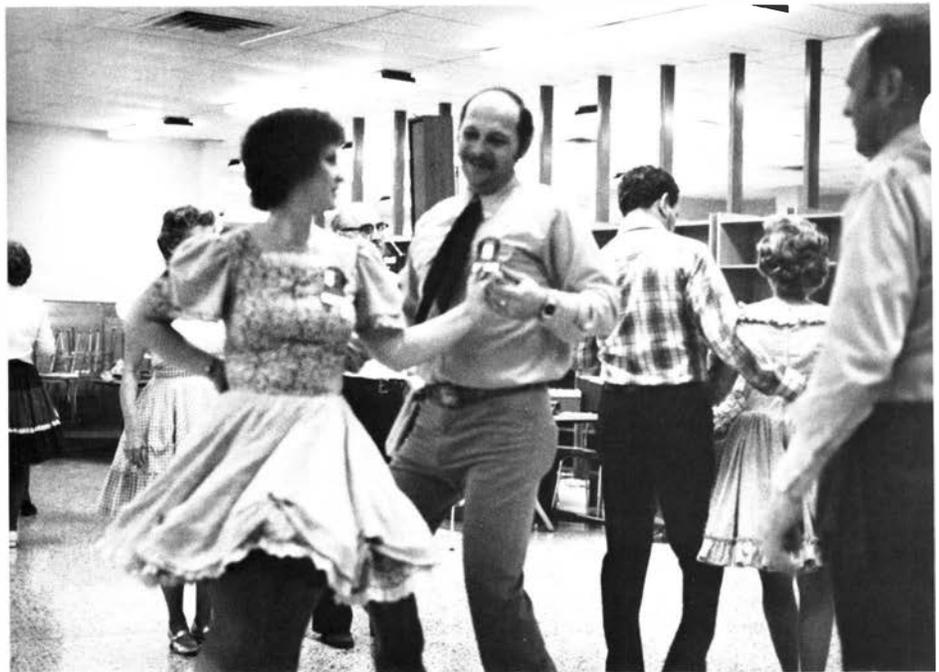
Schumacher unwinds after work by doing yard or house work. Like a number of other Nashville controllers, he carries his love of airplanes into building models and flying lessons. After dinner, he then may talk about the day, whose problems she now understands even better.

Another controller's wife who shared a shift with her husband had to adjust her lifestyle to his varied hours. Ginger Wright now is a court reporter, and she



EPDS Margaret Hamilton (left) shows a visiting controller's wife, Cheryl Gill, a recurrent training class before she joins her husband, Leo, on the boards. At work in the class are EPDS Frank Price (left) and DSS Jim Webb.

Photos by Thom Hook



Seeking a physical way to unwind, Luis and Claudia Gonzalez have become serious square-dancing devotees, spending several nights a week with a local club.



Besides jogging and fishing, controller Bob Sory unwinds using his hands in re-finishing antique furniture, as his children Kimberly and Jeffrey watch.



Controller Galyon Northcutt's relaxation is an unusual one—practicing land surveying. While son Scott holds the surveyor's rod in the background, his wife, Phyllis, and daughter, Wendy, learn something about his hobby.

2:45 p.m., while others start at 3:18 p.m. to relieve the crew getting off at 3:30 p.m. If the entire crew were to leave simultaneously, briefing and taking over could be inadequate, and an error could occur.

Relaxation for the controllers takes many forms, as it would for any other group of people, although it may be with a greater physical intensity. They restore furniture, build kit clocks and model airplanes, repair cars, survey land, square dance, play music and will even drive a thousand miles to see the Confederate Air Force in action at Harlingen, Tex. All of them love airplanes.

“We recognize that controlling aircraft is stressful to many,” said tower chief Maye. “It can cause them to act and react differently when they get home than they normally would, in many cases.”

He plans to run visits for other wives among his 42 controllers next fall. “From comments I’ve received, the wives who came were impressed and helped by the experience,” said Maye. “Controllers like to talk with other people about what they do, but not enough people know about their ‘business’.”

Now, at least their wives do. ■

often is off for work when Jerry is coming home.

“Not having the same days off always means we have to adjust to doing some activities without the other partner.” Ginger said. “On the other hand, it gives each of us an opportunity to do what we like, and we have come to appreciate that time.”

Mary and Howard Russ made up the final couple to share the shift, monitoring the five radar room positions and four in the tower.

The shift work at Nashville Tower changes weekly, and controller wives don’t make any plans without first consulting their calendars. Their husbands

may be working two evenings, two days and a midnight one week or two evenings and three days another. Their two days off then follow; it’s not 9-5 with Saturday and Sunday off. Shifts are changed every four weeks, and the Nashville controllers prefer the constantly changing times.

Shifts are staggered so that the number of controllers will match anticipated traffic volume. For a shift starting at 2:30 p.m., the controllers will relieve the crew of controllers finishing their tour of duty at

By Irving Moss

An Eastern Region public affairs specialist, he is a former information officer for the Port of N.Y. Embarkation and the Borough of Brooklyn.



A Bad Way To Land

James Tobin may be the only person to have had an upside-down, inside-out, hang landing. He's around to tell about it thanks to a good co-pilot and a center controller.

Tobin had been an army pilot, but now his first flight as a civilian pilot nearly became his last. Just before noon on a December day, he took off from Morristown N.J., in an Army twin-engine Beechcraft carrying military cargo to the Aberdeen Proving Ground in Maryland. When he reached a cruising altitude of 9,000 feet, he routinely checked in with the New York Center.

Then a red light popped on in his panel, indicating that the cargo door might be unlocked. He went back to check it. "All I did," he admits sheepishly, "was just jiggle the handle . . . foolishly!"

The door swung open, and out swung pilot Tobin with it. Miraculously, his left arm caught in the chain holding the door, and his left foot caught the door railing. He pivoted against the open door with such force that his right arm was broken. There he hung, head down under the fuselage, one foot in the plane, his right arm broken and his left arm holding onto the door chain for dear life.

With the plane on auto-pilot, his co-pilot, Robert Pierce, twice tried to assist him. Each time he approached the open door, however, the plane became unbalanced and started to bank. He yelled down to Tobin to hold on and slid into the pilot's seat.

At the New York Air Route Traffic Control Center, controller David Schaller received his emergency call for a descent. "How low do you want to

go?" Schaller asked in innocence. "All the way to the ground," Pierce shot back. "The pilot's hanging out of the airplane!"

Schaller immediately routed all other traffic out of the way and cleared the Beechcraft for the descent.

Luckily, the uncontrolled Solberg-Hunterdon Airport at Readington, N.J., lay just below. It took 10 minutes for Pierce to circle the plane carefully down to the airport, with controller Schaller encouraging him all the way.

Meanwhile, outside the plane, Tobin

recalls telling himself that if he wanted to see his wife and kids again, he'd better hold on.

As the plane approached the landing strip, he realized that his head was hanging below the level of the wheels. With a mighty effort, he pulled his head up as the wheels greased on, and a pebble thrown up by a wheel hit him in the left eye.

Tobin isn't counting his broken right arm, his sprained left wrist or the mouse on his left eye; he's counting his blessings. ■

FAA Administrator-designate



J. Lynn Helms

By Larry Bagley
A controller at the Salt Lake City ARTCC, he is the new president of the U.S. Parachute Association.



Our ATCS Looks at Their ATC

A Peek at China's Nascent Airspace System



In 1980, Larry Bagley, a controller at the Salt Lake City ARTCC, spent three weeks visiting the People's Republic of China as a member of a U.S. parachute team participating in sky diving competitions. His recollections provide a rare insight into Chinese air traffic control.

“It’s a one-in-a-lifetime opportunity.” Chief O’Neill’s words echoed through my mind as I gazed out the train’s window at the lush China countryside. It seemed almost unbelievable that just two days ago I was creeping through the fog to work at the Salt Lake City Air Route Traffic Control Center, and now I was basking in the south China sun two hours from Hong Kong.

Less than two weeks before, Craig Fronk, head of the delegation for the U.S. parachute team, asked me to join the entourage for the three-week trip to China as guests of the All China Sports Federation. Remarkably, everything that had to be accomplished to enter a Communist country could be handled through the travel agency in Washington, D.C. Now, if I could convince the chief I needed to be off for the three weeks, I was sure I could raise the money.

The chief laid before me a seemingly small task: Find out about air traffic control in China, and my leave would be approved. So, before leaving Salt Lake City for Los Angeles, the departure point of the entourage, I wrote to Pan American Airlines to tell them the flight I would be on to Hong Kong and asked them to advise the flight crew of my desire to quiz



them on their knowledge of and experience in the air traffic control system of China.

The purpose of the trip was for a friendly skydiving competition with the world’s best four-man team, the Canadians; the best eight-man team from America; and the two finest teams from the People’s Republic of China (PRC) in the south China industrial city of Guangzhou (Canton), 113 miles west of Hong Kong. As chairman of the competition committee and a member of the board of directors for the U.S. Parachute Association, I would be an official of the meet.

Prior to my boarding the Pan Am flight, I did some research on the Civil Aviation Administration of China (CAAC)—its government-owned-and-operated airlines. I knew CAAC had about 40,000 employees, with almost 10,000 directly involved in flight operations, and that it operated 66 international flights weekly on 11 routes and 500 domestic flights on 160 routes. I had also read in an *Aviation Week and Space Technology* magazine article that Chinese officials expected a 15-20 percent annual growth rate in traffic and air freight, but that by Western standards, the aerospace technology in the PRC was 20 to 30 years behind.

Sitting in the cockpit of the Boeing 747 just south of Alaska, I learned from the

Following a successful skydiving competition, controller Larry Bagley pauses before his CAAC airliner at Guangzhou (Canton) Airport on his way to Beijing (Peking) to play tourist.

crew that the metric system is used throughout China—that height is measured in meters, distance in kilometers, rate of climb/descent in meters per second and the barometric pressure in millimeters of mercury. The crew told me that the vertical separation used between 600 meters (1,980 feet) and 6,000 meters (19,800 feet) is 300 meters (990 feet), and above 6,000 meters, 1,000 meters (3,300 feet) of separation is given. Throughout China, the standard altimeter setting (29.92 in., 1013.2 mg., 760 mm.) should be used above 6,000 meters.

The delegation’s arrival in Guangzhou was marked by a small ceremony at the railway station. When we reached our hotel, more lavish than we expected, I noticed that the Consul General of the United States was housed in the west wing. He would be my first contact in the PRC on air traffic control.

When consul Richard Williams heard my request over the telephone, he chuckled and said, “There isn’t much air traffic control in China, but come to my office anyway.” There, Williams told me of a request from the State Department in Washington about six months earlier to investigate air traffic control in Guangzhou for an American company, International Aviation Systems, Inc. IAS was

Larry Bagley (left), now president of the J.S. Parachute Association, and Jack Bergman, its secretary, visited the Summer Palace of former Chinese emperors outside of Beijing.

Photo by Lowell Bachman



The modern Beijing terminal and the TRACON tower (top), which won't be in use until the end of the year. Across the ramp from the main terminal is the two-story tower/approach control currently in use with a four-man crew (above).

preparing a \$70 million bid to upgrade the ATC system in China in two phases, the first phase affecting the terminal control facilities in Beijing (Peking), Shanghai and Guangzhou and the second phase dealing with the enroute facilities in Guangzhou and Beijing.

When Williams' secretary attempted to obtain an invitation for me to visit the facility at the Guangzhou Airport, a Mr. Liang of the International Business Office of the Civil Aviation Administration of China (CAAC) said such visits were not permitted, unless I had an official invitation from the Chinese government. With the parachute meet lasting sunup to sun-down every day, I had little chance of getting that invitation.

Twelve days later, after very impressive victories by the American eight-way team and the Chinese four-way team, the All China Sports Federation bused us to the Guangzhou Airport for our two-and-a-half-day trip to Beijing, three hours north by jet. We found the airport, like everything else so far, small, crowded, smoke-filled but basically modern. Because our bags had been checked by our hosts while we were at breakfast, we moved quickly from the bus, through the terminal and out the gate for boarding of the British Trident.



Incidentally, although we had been cautioned before leaving home about taking pictures while in China, at no time were we restricted from using our cameras. Because our film was being supplied by the film production company brought along to document our trip, most of us took several hundred pictures.

After filling all 102 seats, the Boeing 727 look-alike lifted off, destined for Beijing, 1,200 statute miles north, taking us from the same latitude as Hawaii to that of Salt Lake City. Because we anticipated the change, we were dressed for the trip.

Once level at 10,000 meters, I queried our interpreter, Men Lai, on the possibilities of visiting the cockpit. Realizing

the difficulty I experienced in Guangzhou, I gave him my FAA identification badge and almost pleaded with him to enquire. Moments later, Men Lai led me up the aisle to meet Mr. Feng, one of the three pilots on board. Not speaking, we shook each other's hand, and he motioned me into the cockpit. There, seated in what appeared to be two large over-stuffed chairs covered with plush corduroy, were two more captains (all three had four embroidered gold stripes on their sleeves). Behind the right seat was the mechanic and opposite him sat the navigator with the radio/telephone operator to his left.

Using Men Lai for interpretation, I asked a few pointed questions, still stunned at being allowed to visit the cockpit. First, I learned that five minutes before the proposed departure time, the pilot was given an ATC clearance. Beside the tower controller that gave permission for takeoff, the crew would talk to four



other controllers enroute to Beijing. Mr. Feng pointed to the flight instruments to show that we were now navigating on ADF but that Beijing and Guangzhou had VORs. Also because the crew was required to make position reports enroute, I surmised that enroute radar was not available. Because of the implied awkwardness of this visit and the difficulty of communication, even with the use of an interpreter, I was unable to ask more sophisticated questions. Mr. Feng politely asked us to leave after about 10 minutes.

Our straight-in approach to the Beijing Airport was in ceiling-and-visibility-unlimited conditions. We were pleased to find it quite modern, with telescopic walkways connecting the jet to the concourse and conveyor-belt walkways. Evidently, it had been opened quite recently, because the tower was still unoccupied. Forty-five minutes after loading on the luxurious bus in front of the terminal, we drove past the Tien An Men Square, two miles from our hotel in the very center of Beijing.

For the next two days, we visited The Summer Palace, built by the Ch'ing emperors 120 years ago; The Great Wall of China, which is the only man-made object on earth that can be seen by the astronauts in outerspace; The Forbidden City, a 9,000-room complex built during the period 1406-20 to house 12 of the Ming emperors and their families and servants; and The Mao Tse Tung Memorial Hall, built within 10 months after Mao's death in September 1976, where his body still lies in state. Superlatives are hard to find to describe the sights and feelings we were experiencing, and it was happening so fast that it was almost impossible to fully appreciate.

After arriving at the Beijing Airport for

Beijing controller Chen Yong Ming mans a position that provides him with only one communications frequency plus an emergency backup.

lunch an hour before departure for Guangzhou, I once again approached our interpreter, Men Lai, for a possible visit to the tower. Surprisingly, a two-minute telephone call was all it took to arrange for a car and driver to deliver us to the tower. Instead of going to the very new and modern-looking one overlooking the airport, however, we drove across the ramp past a row of CAAC Boeing 747s to a small housing complex at the far end of the runway. Driving through a seven-foot gate and past a People's Army guard, we stopped at the foot of a two-story brick building resembling a temporary tower used by the FAA at special airshows. Chung Chi Ching, director of the facility, greeted me and Men Lai at the base and escorted us up the metal ladder into the cab. Once again, communication proved to be almost insurmountable. After meeting controllers Choug Ming Liang, Chen Fang and Chen Yong Ming, I began asking my "technical" questions. There was no free exchange of information in that they were not at all curious about my environment as an air traffic controller in the United States, but they responded, as best they could, to my questions.

I learned that the day before, the CAAC airline calls the tower with proposed flights and departure times for the following day. Then, five or 10 minutes before the flight is to depart, the airline dispatching office calls the tower for clearance to relay to the pilot. The pilot then calls for takeoff clearance while taxiing, not needing permission to taxi.

A corridor concept is used around Beijing with three for inbound and three solely for outbound. The departure clear-

ance issued to the aircraft is based on the inbound arrival times called to the tower from Beijing control (enroute). Although there was a rotating radar antenna at the other end of the airport, radar was not in the tower, so all control was manual. An NDB 100 kilometers from Beijing was the turnover point for inbounds and outbounds.

Director Chung informed me that the tower was kept open 24 hours a day, even though there was little traffic after 11:00 p.m. Average traffic volume was 80 to 100 flights a day, mostly that of the CAAC, with some military and no general aviation. He expected to be moved into the new tower by late 1981 and would then be afforded such luxuries as radar and even a computer.

With a population of almost eight million people in Beijing and 900 million in the PRC, one would envision more air traffic than we witnessed. However, if one remembers that the average factory worker makes \$50 per month and how strong communal structure is throughout China, it becomes obvious how little air travel is needed. The average time flown in the Boeing 747s is only three hours per week. Of course, their main function is to provide mobility for the People's Army.

After an all-too-short 20 minutes and a few quick pictures, I was escorted back across the ramp to our waiting Boeing 707 for the flight back to Guangzhou. Once aboard, I boldly sought permission to enter the cockpit but was politely refused. Many unanswered questions remained within me that I would take home. Regardless, I felt very fortunate for what little success I had. Maybe next time. . . ■

I am scheduled for schooling at the FAA Academy and plan to use my own car. A colleague of mine is going to the same class and also intends to drive his own car there. Why doesn't the FAA allow him extra mileage if he carries a passenger? If he were allowed a slight increase in the mileage rate, I would travel with him—he would be compensated for the inconvenience and FAA would save most of another mileage allowance.

FAA employees traveling on official business are reimbursed under the Federal Travel Regulations issued by the General Services Administration and implemented by DOT Order 1500.6 (FAA Order 1500.14). The mileage rate currently is 22.5 cents per mile when the use of a privately owned vehicle is determined to be to the government's advantage. This rate was arrived at to approximate the actual costs of driving a vehicle. DOT Order 1500.6, Para. 835, limits the payment of mileage to only one of two or more employees traveling together. Employees are responsible for using prudence in the expenditure of travel funds and are urged to ride together whenever possible.

Tower "A" and Tower "X" are Level II VFR facilities located less than five miles apart. Tower "A" faces a possible downgrading to Level I. Nearly all controllers under the Reform Act will retain their GS-11s for two years, "unless."

Can we assume that under administration policy all future GS-11 vacancies at Tower "X" will be offered to controllers at "A" who have grade

retention? If so, how will the offers be made—by seniority? And if the senior man declines, will he immediately lose grade retention and be downgraded to GS-10? With or without grade retention? If pay retention is not authorized, which step of a GS-10 would a GS-11, Step 4, go to?

Will the rest of the group, in seniority ranking, then be offered the GS-11 position at "X"—or will the vacancy be filled by other means after the initial refusal? Alternatively, could vacancies at "X" be filled by volunteers by seniority or, since the transfer is considered undesirable, could the least senior controller be offered it first so that downgrading would progress from the bottom up?

Would a controller at "A" who declined an "X" position be eligible for involuntary retirement (discontinued service) if he met the basic requirements—25 years service or 20 years at age 50?

With "A" being downgraded, what step of a GS-10 would a GS-9, step 4, in retraining and reaching FPL status go to after having been a GS-11, step 2?

Finally, would a staff study of hours of operation be required before facility downgrading, since division of the "magic number" by 15 hours instead of the present 16 would lead to an immediate Level II traffic volume again?

The priority placement plan in Appendix 2 of Order 3550.11 covers employees entitled to grade retention under the Reform Act. Under this plan, employees at or above GS-6 could be made a reasonable offer at their retained grade level for any location within the region during the

two-year grade-retention period. If the employee declines a reasonable offer, as defined in the order, it would result in the loss of the grade retention. In the situation cited, the salary would be set at GS-10, step 7. Offers are not made by seniority, but a list of priority-placement eligibles is referred to the selecting official having an appropriate vacancy, and he or she can select the most suitable candidate. If a priority-placement eligible is not selected, the selecting official must furnish acceptable justification for not doing so.

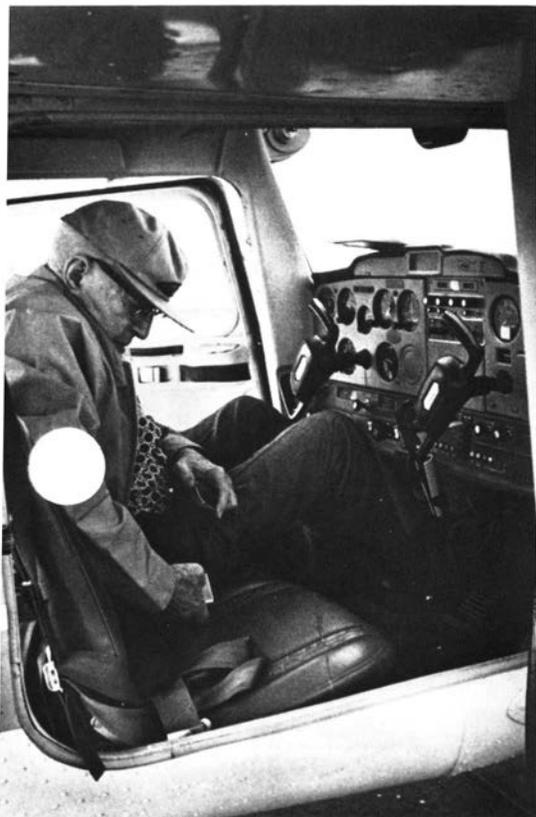
The loss of grade retention for declining a reasonable offer would not qualify an employee for a discontinued-service retirement.

Assuming that "retraining" means a facility training failure who was placed in another option, the salary would be set at GS-10, step 3. A training failure does not get the benefit of the highest previous salary.

The facility level is determined by maintaining and monitoring records of hourly traffic density for 12 consecutive months. If this results in a downgrade action, it is not the agency's policy to reduce hours to maintain the facility level.

You've tried the normal channels—your supervisor, the personnel management specialist, the regional office—and can't resolve a problem or understand the answers you've gotten. Then ask FAA WORLD's Q&A column. We don't want your name unless you want to give it or it's needed for a personal problem, but we do need to know your region. All will be answered here and/or by mail if you provide an address.

Flying Is for the Young at Heart



Gavin prepares to takeoff on his 1980 flight from Denver to Lafayette, Ind.

Denver Post photo by Ernie Leybo

A birthday treat for Gavin was a short "fam" flight aboard Northwest Region's Cessna Citation piloted by Ron Bernstein (left) and Chuck Cooper.

At 87 years of age, when most men would have long since retired from activity more strenuous than a long walk, Frank Gavin was still an active pilot. When the jig was up last fall, however, he yielded gracefully.

The Seattle resident, who was one of only 10 of his years to be an active pilot, according to FAA records, first took up flying in 1927—the year that Lindbergh made his historic flight to Paris—in an Alexander Eagle Rock. The Great Depression ended his flying for a few years.

He was trying to earn his private pilot license in 1941, flying dual, when he was ordered out of the air because the Japanese had just bombed Pearl Harbor. Private flying then was banned for 100 miles from the coast, so he finished qualifying for the license in Spokane early in 1943.

In the Twenties, he worked for the old Truscon Steel Co. in Denver and transferred to Seattle in the Thirties. He then joined the Civil Aeronautics Administration as "an airport manager, of sorts," Gavin said. "Most of my work involved inspecting airports and airstrips in Washington, Oregon, Idaho and Montana. Because I could fly, I had the enviable position of getting paid to do what I loved to do."



He retired in 1954 and became a salesman for a private airplane distributor in New Orleans, during which time he organized an aerocade through the South to promote aviation and airports.

In 1961, his former boss called him back to be an airport inspector for the FAA in Texas and later in Atlanta.

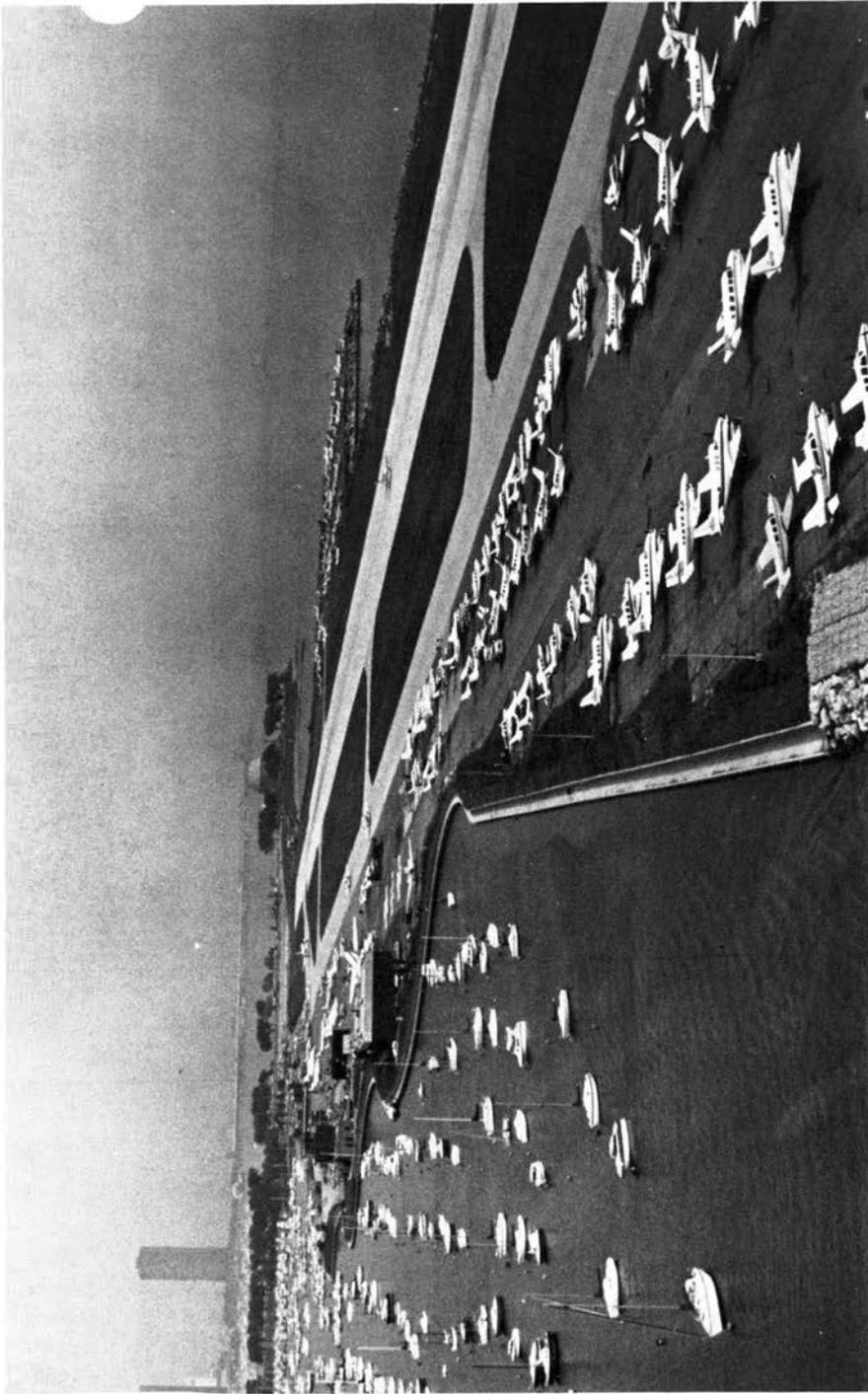
One of his great pleasures has been to fly himself to a reunion of the Class of 1915 at Purdue University in Lafayette, Ind., every five years. Last year, because he didn't want to fly over the mountains, he took a commercial airliner to Denver, where he rented a Cessna 152 to make the trip east in easy stages.

He began to realize, however, that time was running against him. Although his checkride at Longmont prior to his reunion flight had gone very well, according to his instructor, and he later accomplished his biennial flight review at Boeing Field, he had started to write himself notes and, after all these years, copy down the checklist and then misplace them. On the reunion flight, he scared himself by getting lost.

"I got to the point where my memory was slipping," Gavin said. "It was time to hang it up," and he voluntarily surrendered his ticket.

The timing was right. He went into a hospital for a checkup, where the doctors found his blood pressure low and his heart irregular and gave him a Pacemaker.

After 1,800 hours of "fun" flight time in the left seat, Gavin will have to settle for a back seat in an airliner. ■



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