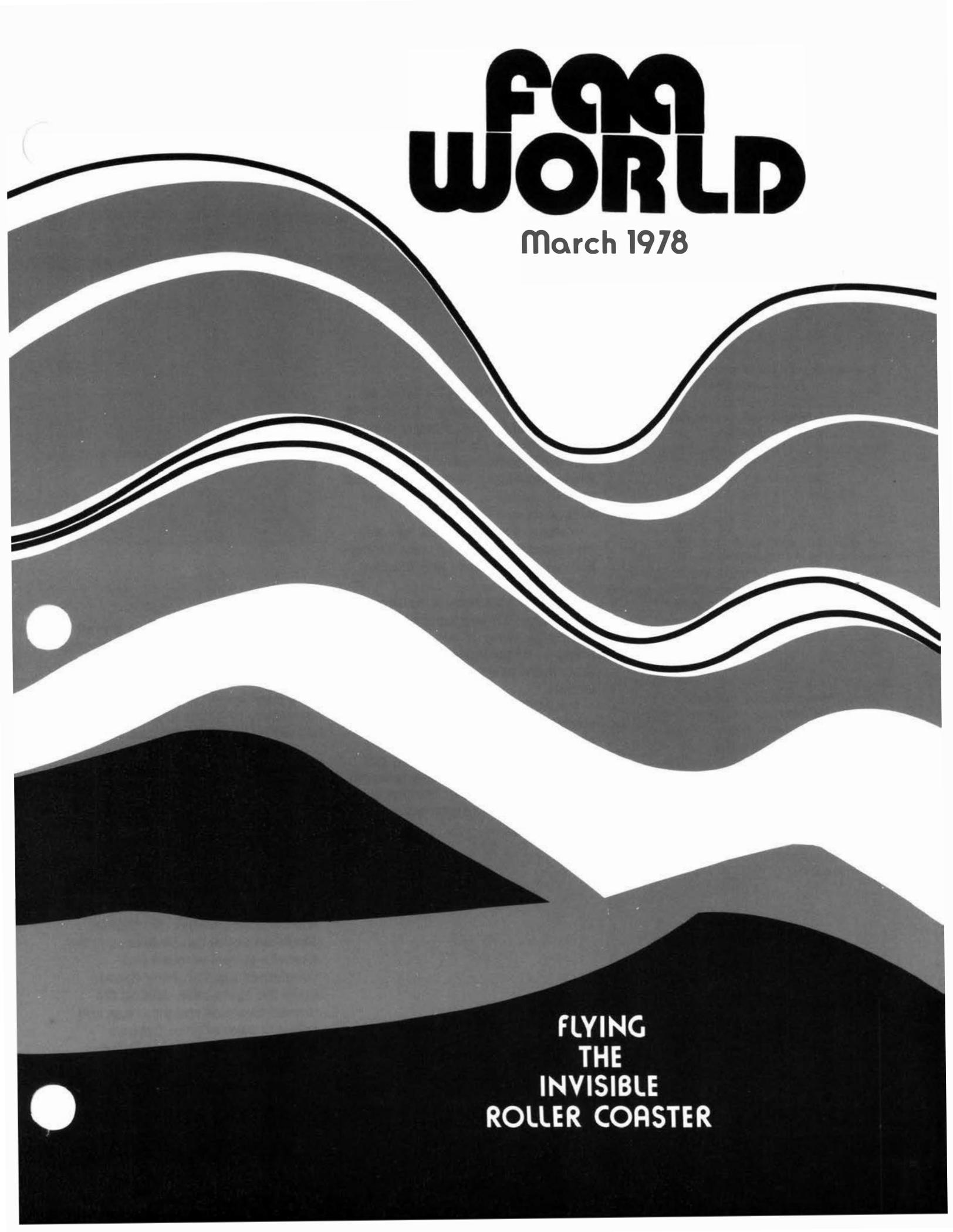


FOOD WORLD

March 1978



FLYING
THE
INVISIBLE
ROLLER COASTER

FAA WORLD

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It was a beautiful day for flying, as the pilot of a Cessna 172 with three others aboard tooled along eastward over California. He climbed to 14,000 feet to negotiate a pass in the southern Rocky Mountains. Suddenly, he found himself carried to 23,000 feet—and with no oxygen aboard.

Instead of making a 180, he coolly continued downwind and was shortly back at a safe altitude and 75 miles further along.

What this pilot knew from also being a sailplane pilot was that he had hit a mountain wave and was better off riding it into the downdraft than turning around and being stuck in the updraft longer.

Mountain-wave soaring has become almost second nature to sailplane pilots who live near mountains, but most pilots of powered aircraft generally are not so well acquainted with this phenomenon, and their flights can be affected much to their advantage or disadvantage.



Over the years, numerous aircraft accidents have occurred in such areas for which there was no satisfactory explanation at the time, although it has long been known that the airflow over mountains or hills is usually more disturbed than over flat country.

During the past decade, however, a great deal has been learned about the nature and magnitude of disturbances in the air stream caused by mountain barriers and about the meteorological conditions that affect them.

As air flows across a mountain range, mountain waves (often called lee or standing waves) form to the lee side in an air mass that has favorable wind and temperature distribution. Mountain waves can be likened to the flow of a stream across a just-submerged log. The water rises to cross the obstruction, falls on the downstream side and then rises and falls a number of times before a smooth flow is again established.

Mountain waves become partly visible when a characteristic lenticular cloud forms at the crest of the waves as shown in the diagram on page 4. Although the wind may be strong, a lenticular cloud appears to be motion-



FLYING THE INVISIBLE ROLLER COASTER

less; actually, it is constantly forming on the windward side and dissipating on the downwind side. Occasionally, standing waves have been seen to move off downstream as gravity waves.

The amplitude, or half height (see diagram), and length of barrier-induced waves depend on the vertical temperature structure and the wind speed and direction, and the strength of vertical currents depends on the wind speed and the relationship of amplitude and wavelength. Vertical currents of 3,000 feet per minute or more are observed to the lee of both the Rocky and Appalachian Mountains.

In the Bishop, Calif., area, the pilot a P-38 once encountered an extreme updraft of 8,000 feet per minute. He feathered both propellers and used the

fighter as a sailplane, gaining 10,000 feet. The altitude record for sailplanes was made flying in this phenomenon—in the Rocky Mountain area, 46,000 feet.

Since the advent of the weather satellite, photographs of entire mountain-wave cloud patterns have been observed. (See photos on page 4.)

What does it take to fly successfully through mountain waves? Important to both the sailplane and powered pilot is a weather briefing from a briefer who understands the intricacies

of mountain flying, the needs of the sailplane pilot and of the pilot unfamiliar with high country.

Sailplane pilots are likely to be familiar with flying in mountain waves and need only to know if they are occurring or are forecasted to occur.

The powered pilot, on the other hand, could use some tips. Such counsel should include:

- Maintain a frequent watch on the altimeter, especially at night or when flying in clouds. Remember that indicated altitude can be higher than it

actually is because of localized variations in temperature and air compression. More than one pilot has had the uncomfortable situation of looking for a ridge below only to find it staring him in the face.

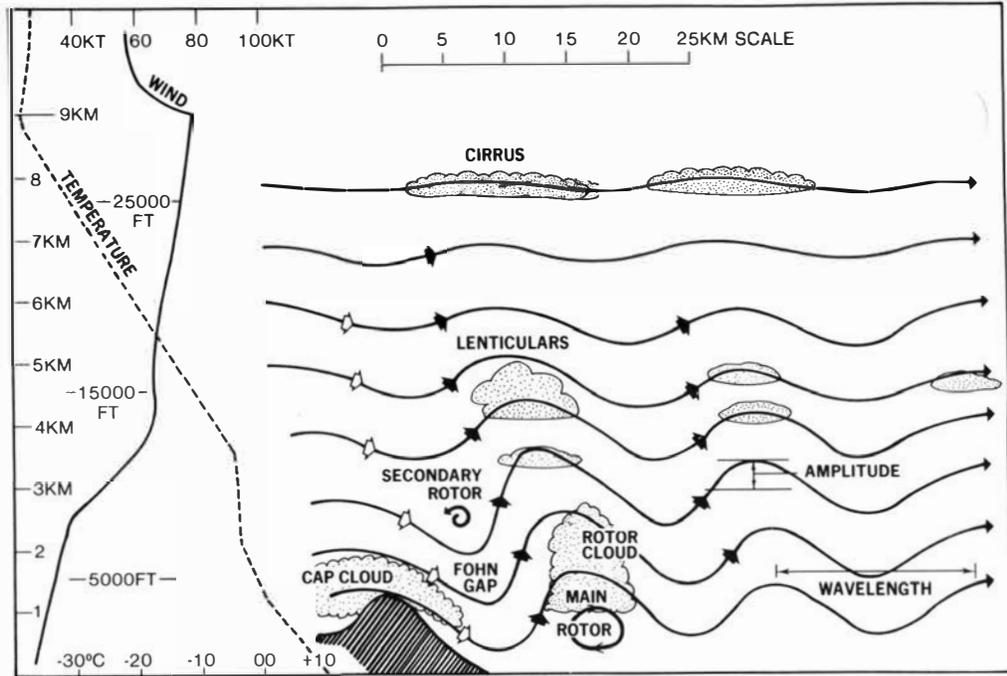
- Approach a mountain range at a 45-degree angle, particularly when flying upwind, so that a quick turn can be made away from the ridge if a strong downdraft is encountered.

- When there's a sustained loss of altitude when flying parallel to a ridge, rising air will likely be found a few miles towards or away from the ridge upwind. But if the aircraft is so near the slope that the downdraft is obviously caused by air flow down the slope, rising air should be looked for further downstream.

- It's possible when flying into the wind to use updrafts to gain altitude. Look for rising air upwind of rotor clouds and lenticular clouds if they happen to be near flight level. Try to use the updraft to gain altitude before crossing the mountain or get altitude a good distance downwind before approaching the mountain. A good rule is to cross the mountain with a clearance of at least half the elevation of the peak above the valley.

- Icing in mountain-wave clouds can be severe. Stay clear.

- Avoid levels where turbulence can be expected over and near the moun-



Schematic Cross Section of Mountain Wave

tain. Avoid flying in rotor clouds, since severe to extreme turbulence can be experienced in strong waves.

Both sailplane and powered pilots will want to know the weather prospects, but for different reasons, and they can find out from the flight service station or the National Weather Service. What they'll need to know are:

- Winds aloft forecast, called FDs, up to 39,000 feet, although the pow-

ered pilot's interests will be lower.

- Latest observed temperature lapse rate, including the levels of inversion, if a nearby upper-air sounding (RAOI) is available. This will generally be of little interest to the powered pilot, although the sounding can help the briefer determine the levels of turbulence.

- Strength of surface and low-level winds and the intensity of turbulence



The ESS-9 Weather Satellite photographed a pattern of waves to the lee of the Appalachian Mountains over Pennsylvania, Maryland, West Virginia and Virginia. The same clouds can be seen from the ground side in Alexandria, Va., an hour and a half earlier (below).



Bob Hart flies an SH-1 sailplane in a mountain wave over Frederick, Md., at 16,000 feet. The rolling wave clouds can be clearly seen. The photo was taken by Gene Wilburn.

forecasted. Often there are good waves for sailplanes, but it may be too windy and turbulent to fly. Under these conditions, the early morning and very late afternoon hours will be best, as it is for balloonists (see "Weather or Weather Not," FAA WORLD, July 1977, page 18).

—*Wave clouds* observed by weather satellite or as indicated in the satellite narrative message available from the National Weather Service RAWARC circuit or on request-reply at FSSs or through FSS requests to a Satellite Field Service Station.

—*Cloud conditions and visibility* over the area of the flight. Current observations, terminal forecasts, PIREPs, SIGMETs and AIRMETs are useful to both types of pilots.

With this data, the knowledgeable briefer can discuss the likelihood of mountain-wave development for safe passage or just safe fun.



By Charles V. Lindsay
National Weather Service
Central Flow Control

What Makes a Mountain Wave?

There are several factors affecting the formation of a mountain wave, but basically, you need a wind blowing within 30 degrees of perpendicular to a mountain range, and, most often, conditions are more favorable in the spring and fall when winds aloft are stronger.

Wind—The minimum wind speed for wave development near mountain tops is about 15 knots in the Appalachians and about 25 knots in the Rockies. The wind speed must increase with altitude, or at least remain constant, up to the tropopause (30,000 to 40,000 feet in temperate latitudes), where the temperature remains constant with height and the winds become light. The wavelength varies directly with mean wind speed.

Temperature and Moisture—Waves most often form where there are tem-

perature inversions—boundaries between denser, colder surface air and warmer, less dense overlying air. There should be marked temperature stability (isothermal layers or inversions) at the levels where the air is disturbed by the mountains (see the left side of the diagram). This very stable layer need not extend to the surface, but layers above and below the stable layers should be only slightly stable. The amplitude of the lee waves is greatest in the temperature-stable layer and especially when it is shallow and very stable. The strength of the vertical motion (lift) depends on the wave amplitude, wavelength and wind speed.

Jet Stream—The presence of a jet stream with high winds and strong vertical wind shear is important in wave formation. A study by the author,

"Mountain Waves in the Appalachians," *Monthly Weather Review*, July 1962, showed that 80 percent of pilot reports of waves occurred within 200 miles of a jet stream.

Topographic—A long mountain ridge is more effective than a short one or an isolated peak, and a ridge line that presents a concave face to the wind produces a greater wavelength than a convex one. The shape of the lee slope and its height above the valley has more effect on the waves than does the windward slope. When the spacing between successive mountain ridges is about the same as the wavelength of the lee waves, the amplitude is increased, but if the distance between them is much different than the wavelength, the amplitude of the wave is diminished and may even be damped out entirely.

WORD SEARCH

By Thomas S. Hook
Acting Chief, Public Information Center
Washington Office of Public Affairs

This month's puzzle is of jobs and work categories at which people are employed in support of the agency's mission. The words read forward, backward, up, down and diagonally, are always in a straight line and never skip letters. The words may overlap, and letters are used more than once.

Use the word list if you must, but try covering it first. All 49 words can be found. Circle those you do find and cross them off the list. The word "janitor" has been circled to get you started. When you give up, the answers may be found on page 16.

B N A I R O T S I H C L E R K R E Y W A L A
H U H A E M E T E X Y R A T E R C E S X O S
M R B D L P Y A N C F A R T R A I N I N G N
R S M M G E T R M O U X I Y R A R B I L N O
E E V I T C E T E D K R E S E A R C H S I I
L Y F N S O K H N A W O I N K E L P A C T T
L H O I J R V A V S O Y S T E G D U B I N A
O P R S T A F F I N G R U N Y S A B I N U R
R A T T Y A L O R O T A R T S U L L I O O E
T R A R P U A P O L I C E N Y P L I K R C P
N G G A I D G E N I C I D E M P Y C O T C O
O O N T N I E S M A K A L T A L A I N C A T
C T I I G T L T E I S A F E T Y A N S E O S
L R T O (R O T I N A) A G N I Y L F K L N I
E A N N A R U A T S S T C A R T N O C E O M
N C I T S T G U A R E T H G I F E R I F I O
N A R E R O B A L N O M A N A G E M E N T N
O N P A O L N U H T E C H N I C I A N T A O
S N O N O I T A C I F I S S A L C T B A C C
R E E T N P S T H G I R L I V I C I C L U E
E D I T I N G K R E H P A R G O T O H P D N
P T S Y L A N A P R O C U R E M E N T O E K

ACCOUNTING
ADMINISTRATION
ANALYST
ART
ATCS
AUDITOR
BUDGET
CARTOGRAPHY
CIVIL RIGHTS
CLASSIFICATION
CLERK
CONTROLLER
CONTRACTS
DETECTIVE

ECONOMIST
EDITING
EDUCATION
ELECTRONICS
ENVIRONMENTAL
FIREFIGHTER
FLYING
HISTORIAN
ILLUSTRATOR
JANITOR
LABORER
LAWYER
LEGAL
LIBRARY

MANAGEMENT
MEDICINE
NURSE
OPERATIONS
PERSONNEL
PHOTOGRAPHER
PILOT

POLICE
PRINTING
PROCUREMENT
PUBLIC INFORMATION
RESEARCH
SAFETY
SECRETARY

SECURITY
STAFFING
SUPPLY
TECHNICIAN
TRAINING
TYPING
WRITER

YES, VIRGINIA, THERE IS A D.O.T.

. . . President Carter recently received a letter from an irate citizen commenting on the contract negotiations between FAA and the Professional Air Traffic Controllers Organization. The writer said he was taking the liberty of communicating directly with the President on the subject because a previous letter to the Department of Transportation had been returned by the Postal Service with the notation "Address Unknown."

JOE NAMATH HAS NOTHING ON US

. . . Time was when no one mentioned women's unmentionables. Times change. Now famous football players appear in television commercials displaying their hairy legs in women's pantyhose. Even FAA is getting in on the act. The agency currently is using pantyhose (queen-size) to protect delicate sonic-boom sensing



instrumentation at Concorde monitoring stations on cold and blustery Cape Cod and Nantucket Island. FAA sonic-boom expert Tom Higgins says the pantyhose can be purchased for about one-twentieth the price of the specially-made nylon hoods previously used. And, Tom notes, these savings add up fast when you figure that the covers for the sonic-boom sensors (whether pantyhose or hoods) have to be replaced about every three weeks because of the harsh New England weather. "Small World" can think of another advantage as well. The fellows in-

involved in the monitoring program have a built-in alibi if the wife finds a pair of pantyhose in the back seat of the car.

THE U.S. CALVARY, HE AIN'T . . .

Ernie Gentry of the Phoenix Flight Standards District Office is a cowboy at heart and spends many off-duty hours competing in rodeos and other Western events. Recently, he was at Mormon Lake, Ariz., awaiting his call to the rodeo ring, when he noticed a single-engine airplane make a crash landing on a near-by airstrip. Ernie galloped to the scene, arriving just as the pilot pulled himself from the wreck wondering how he was going to explain the accident to his wife, his insurance company and the FAA. "Hi," said Ernie, cheerfully, "I'm your friendly FAA accident investigator." We don't know what the pilot's response was, but it must have been something like, "Why me, Lord?"

FEDERAL NOTEBOOK

AUTUMN GREEN

While projections indicate the need for a 6.5 percent pay raise for comparability this October, according to the Office of Management and Budget, the President's budget request for FY 1979 calls for an increase of no more than 6 percent to help hold down inflationary trends. The scoreboard on Federal pay raises vis a vis private industry increases since 1970, according to Bureau of Labor Statistics figures, shows private industry raises have exceeded Federal raises by 3.55 percent. ■ The budget proposal reiterates the call for eliminating three of the five longevity pay steps for blue-collar employees, who are deemed to have had larger than comparability increases. ■ The budget calls for consideration of total compensation--that is, for pay evaluations to include the value of fringe benefits. ■ The President's proposal also urges splitting the General Schedule into a clerical/technical schedule based on local prevailing rates and another uniform schedule for the professional/administrative types.

PENSION PROBES

While Congress ordered a study of the feasibility of coordinating the Civil Service retirement system with Social Security in turning back a proposal to absorb public employees into Social Security, the President has appointed Charles Kirbo to head a panel to study the some 50 government retirement systems and rationalize them. The Congressionally ordered study by CSC, OMB, Treasury and HEW is already under way. ■ Retirement-related bills awaiting action include: HR-4319 to reduce from 12 to five years required to carry health and

life insurance into retirement; HR-3447 to eliminate annuity reduction when survivor predeceases and allow survivor option on remarriage--House approved, Senate has held hearings; HR-8771 to permit court awards of portions of annuities in divorces, etc.--House approved; HR-5386 to eliminate mandatory retirement of Federal employees--awaiting a House-Senate conference.

REORGANIZATION PROPOSALS

A Presidential reorganization task force has proposed *splitting CSC into two agencies--one for personnel management, the other for merit-abuse protection *creating an executive service *EEO hiring goals *pay comparability based on total compensation *including state and local employees in wage surveys *cutting blue-collar pay steps and *simplifying the grievance and appeals process, which would ease dismissals, and providing for compulsory arbitration for those under negotiated grievance procedures. ■ Meanwhile, awaiting further action following House committee approval are HR-9279--to protect employees against cuts in grade or salary when downgraded through no fault of their own; HR-3793--to provide for representation during questioning for misconduct; HR-6225--to guarantee a full-scale hearing before an agency can fire an employee in an adverse action.

RIGHT TO PETITION

A court-filed agreement in a U.S. District Court provides that Federal employees and their unions may distribute petitions to Congress in agencies before, during and after working hours, as long as all involved are on their own time.

The fingers move quickly over the keyboard, and the information pops up instantly on the screen. This five-finger exercise has become the speedy and efficient way for a flight service station specialist to brief a pilot on the other end of a telephone line.

The specialist then listens as the pilot tells him where he wants to go and how he plans to get there. As the pilot does, the fingers move again, and the pilot's flight plan is filed. From computer to pilot and from pilot to computer through the medium of the skilled specialist: The cycle is complete.

The computer has weather and other information—like NOTAMs, PIREPs and traffic advisories—from all over the country stored in its memory, and the specialist, using the keyboard, can call up and enter data immediately. When the flight plan is filed, the computer takes over, automatically routing the pilot's flight plan to the FSS at the pilot's destination. In the case of an IFR flight plan, it will also transfer it into the computer of the air route traffic control center.

It's fast, it's efficient, and there isn't a scrap of paper in sight. The teletype machine has been relegated to a back-up role only.

Obviously, it is not your average flight service station. Instead, it is the automated Washington Flight Service Station at Leesburg, Va.

By the year 2000, the number of aircraft in the general aviation fleet is expected to double, while the demand for the services provided by flight service stations is expected to triple.

To handle that kind of workload under the manual system now in use at the rest of the agency's 291 flight service stations would require an additional capital investment of \$150 million and the hiring of 7,000 addi-

tional FSS specialists. The latter figure is especially significant when you consider that the agency now employs approximately 4,500 FSS specialists.

This is an outlay that the agency would prefer to avoid, so it hopes that automation will enable it to meet the expected demand at a reasonable cost.

The FSS at Leesburg was established as a test operation to determine if automation, consolidation and the

co-location of the consolidated stations with en route centers can indeed achieve the hoped-for economies.

Early returns indicate that the answer is "yes" to the first two approaches. On the third, the evidence so far is inconclusive.

A more sophisticated system, which

August Sponaugle, who has spent most of his FSS career doing things the old way, now lets his fingers do the walking to call up weather information on his console at the automated Washington Flight Service Station.



Washington FSS

MODEL FOR TOMORROW

Newcomer specialist Anne Spence likes the automated system, which prints out data on CRT in front of her and a weather map on another tube (to the left).

allows the specialist to call up information on the weather that a pilot can be expected to encounter just along his planned flight path, is being tested at the Atlanta FSS. Another unit is being installed at the Indianapolis FSS.

The agency's budget request for FY 1979 provides for \$146.6 million to automate at least 43 of the most active FSSs in the country. These would use neither the Leesburg nor Atlanta system, but rather the best features of both.

The experiment got under way in February of 1976 when the Washington FSS was moved from Washington National Airport to Leesburg and the specialists began using the automated equipment. This was followed by the consolidation of the Richmond FSS and the Charlottesville FSS into the Leesburg facility.

On any given day at the Leesburg facility, 14 to 18 specialists man three banks of consoles, each of which consists of two cathode-ray-tube screens and a keyboard. They use the keyboards not only to call up the weather and other data and to enter the flight plans, but also to call up a weather picture on the second screen.

This can either be a closed-circuit television picture of one of several weather maps available or a radar display of the Washington, D.C., area piped in from the air route traffic control center.

The lighting is low, so that the displays on the screens will stand out clearly, and the atmosphere is subdued.

This contrasts with a manual FSS where teletype machines chatter constantly as they print out an almost-

endless stream of paper containing the weather and other information that the specialists need to brief pilots. This paper is sorted and organized as efficiently as possible, but, more often than not, the specialists still have to leaf through a lot of paper to find the information a particular pilot is looking for.

August Sponaugle, a flight service specialist since 1961, who is now assigned to the Washington FSS, is a man who has worked with both systems. And as far as he's concerned, the automated way is better.

"I'll stay with this," Sponaugle said. "Going back to all that paper and everything would be traumatic."

Sponaugle said that he wasn't all that enthusiastic about the change when it first went into effect, partly because he and his colleagues were unfamiliar with the equipment and partly because of problems with the equipment. But he said that the problems were ironed out and the specialists now feel quite at home with the equipment.



Anne Spence, who's been a specialist since early 1977, has never worked under the manual system, but she was trained in how to work it at the FAA Academy in Oklahoma City.

"Under the old system," she said, "you really have to look around for what you need. Here, it's right at your fingertips."

Even though it is still in the nature of an experiment, the Washington FSS is nevertheless a fully commissioned and functional flight service station. And its workload averages 25,000 pilot briefings, 15,000 flight-plan filings and 10,000 contacts with en route aircraft a month, which made it second in the nation in the number of flight services provided in fiscal year 1977.

By Fred Farrar



TOP HONOR—Col. Douglas Abercrombie, South Carolina wing commander of the Civil Air Patrol, presents the Grover Loening Aerospace Award to Florence, S.C., FSS specialist Henry A. White (third from left) for his personal achievement as a major in the CAP. Helping in the presentation was Rep. John Jenrette (left). Congratulatory letters were sent by Sen. Strom Thurmond, USAF Brig Gen. Carl S. Miller and Lonnie D. Parrish, chief of Southern Region's Air Traffic Division.

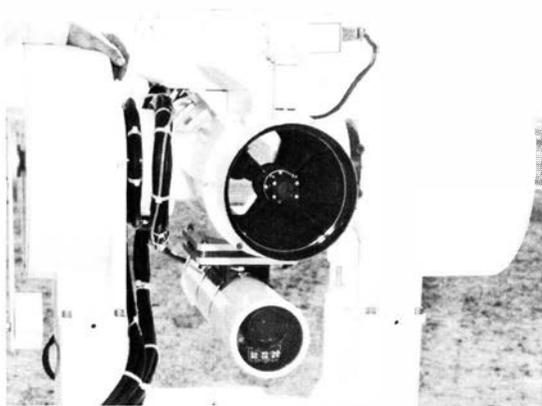
FACES and PLACES



PRAISE RELAYED—A Department of Transportation "Exceptional Service" citation, which was presented to Deputy Administrator Quentin Taylor, has been forwarded to the New England Region's Spanish Surname Committee for its EEO work. Displaying the certificate are (left to right) David D. Bonnicks, Ezequiel E. "Zeke" Lopez and Kermit "Doc" Holliday. Photo by Vet Payne



THERE'S THE CULPRIT—Now weather. A Reno, Nev., FSS specialist on the West Coast in this GOES (Geostationary Operational Environmental Satellite) photo that was provided by the R



SKY TRACKER—With bursts of infrared rays, this Sylvania laser can track and lock on to an aircraft. It can pinpoint a plane's position in relation to its prescribed course within one foot at 20 miles. The tracker is being used at NAFEC to develop and test advanced ATC and landing systems.



A WALK ON THE WILD—Hughes was assigned to... Olympics air show... of which he is president... Hughes asked him to ride Hughes' routine.



OPEN HOUSE—Ansel McAllister, chief of the GADO at Jefferson County Airport, Colo., represented the Regional Director at open-house ceremonies for a new Federal building opening in Grand Junction, Colo., in which the GADO now has a satellite office.

ABSTRACTLY BEAUTIFUL — Chicago O'Hare clerk-steno Marion Kaswell (left) beams at her daughter-in-law Marggy Keith, an artist and private pilot, who painted an aircraft in flight superimposed with an exact scale of an aerial chart of the airport. The masterpiece is on display in the Airway Facilities Sector.



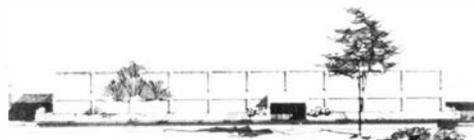
Now who's been causing our awful winter? Not spotted "Ole Man Winter" off the Pacific Operational Environmental Satellite) satellite International Weather Service Forecast Office.

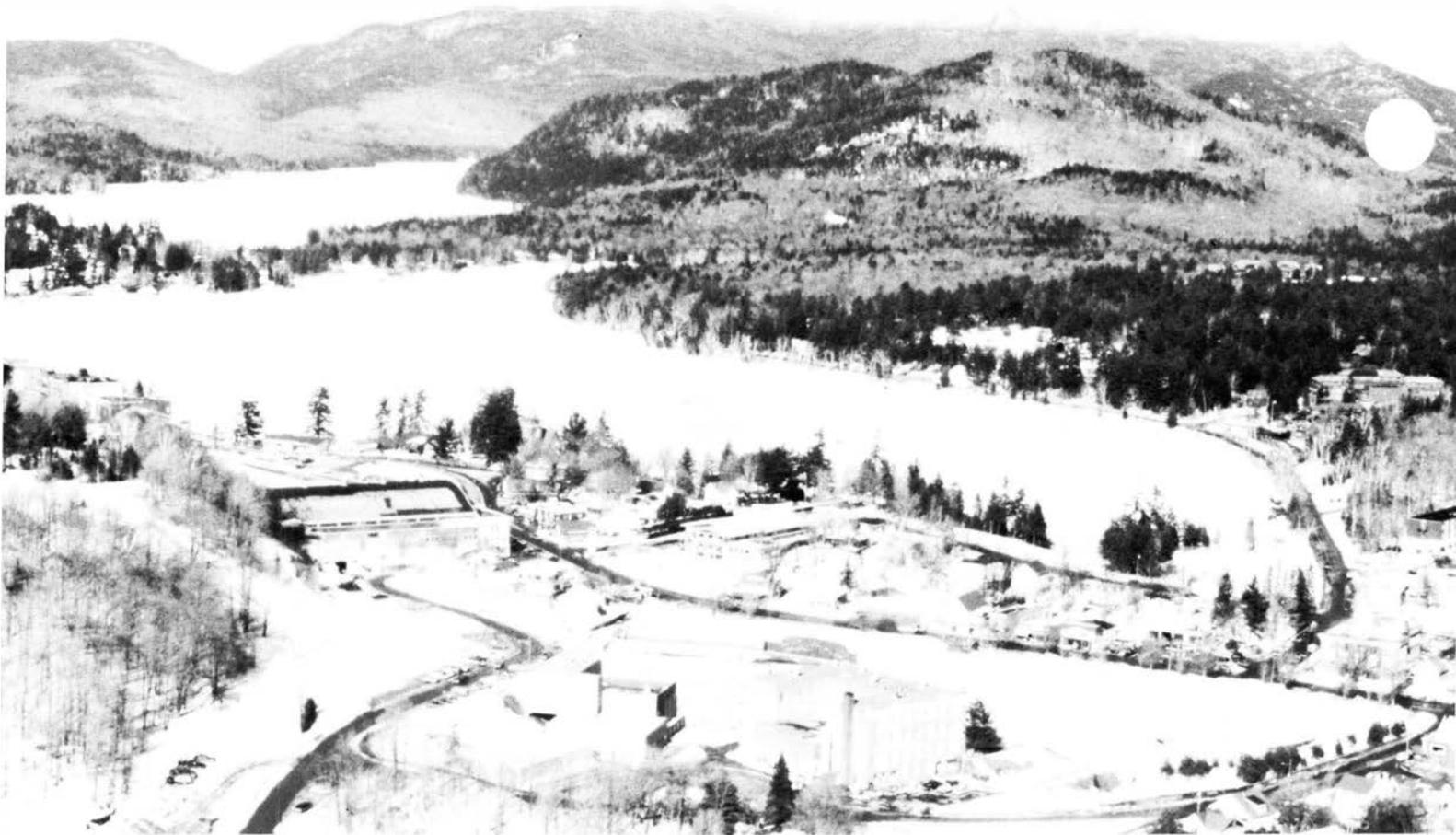


Richard Taylor of the St. Louis FSS... FSS last fall where a special... by the Sport Aero Council,... say "no" when show pilot Joe... wing of his Super Stearman during... Photo by Ron Vandermolen



CHRISTMAS PRESENT — Just before the holiday, the Aeronautical Center broke ground for a 46,870-square-foot radar training facility. Center employees watched the ceremonies in which the participants were (left to right) Jim Cook, Oklahoma City Manager; Tom Creswell, Aero Center Director; Rep. Tom Steed; F. E. Whitfield, Personnel and Training Director; and Paul Strausbaugh, Exec VP of the Oklahoma City Chamber of Commerce. The facility will have classrooms, enroute and terminal radar labs and simulation computers.





The winter wonderland of Lake Placid, N.Y., lies in the shadow of Whiteface Mountain along Mirror Lake, with Lake Placid in the background. In the foreground is the high school with its old Olympic 400-meter speed-skating oval, which is being reconstructed.



Eastern Region members of the Olympics Aviation Subcommittee are (left to right) Lou DeRose, Airports; Harvey DeGraw (standing), Airports; Marty Rosenberg, Air Traffic; Dan Beaudette (standing), Flight Standards; and Herb Holmstrom, Airway Facilities.

New ski-jump towers are being built at the Intervale site—70 meters high on the left and 90 meters on the right—which will be in competitive use next winter.



Olympic Planning Not On Ice



Two years from now—in February 1980—the United States will play host to the Winter Olympics at Lake Placid, N.Y. It's a long time off; too long to think about now. Right?

Wrong! If transportation to the games is to be anything but a problem, advance planning is needed, as it is for the Olympics itself. So, the Eastern Region is well into intensive and comprehensive planning for the important role aviation will play.



Lake Placid was host to the III Olympic Winter Games in 1932 where actress Sonja Henie won her second gold medal in Figure Skating. She won gold medals in 1928 and 1936, before going on to movie fame.

The magnitude of the work involved can be seen in the changes needed for the two airports that serve the Lake Placid area, for the biggest challenge is how to move the enormous number of people who will be descending on this small mountain village.

Picturesque Adirondack Airport at Saranac Lake with its Swiss chalet terminal now enplanes all of 20 passengers daily via a commuter airline. Two years from now, however, it will be required to accommodate 5,000 passengers each day in large air carriers. In addition, a considerable amount of corporate and charter activity can be anticipated.

The even-smaller Lake Placid Airport will be used exclusively as a major staging point for helicopters for medical emergencies, the press, security and other Olympic support activities.

The primary responsibility for planning and organizing to meet transportation needs naturally fell to the New York State Department of Transportation, and it, in turn, asked for FAA participation on an Aviation Subcommittee.

The FAA participants include Louis P. DeRose, chief of the Planning Branch, Airports; Harvey DeGraw, Planning Branch engineer; Al Panarese, LaGuardia Airport Air Transportation Field Security Office; Dan Beaudette, Flight Standards Division; Herb Holstrom, Airway Facilities Division; and Marty Rosenberg, Air Traffic Division.

According to DeRose, planning and coordination to date with the New England Region, which provides en-route control for the area through the Boston Center, has produced the following program to support the air-traffic crush during the Olympics:

- Establishing a temporary tower for two months.

- Setting up additional foreign exchange telephone lines at Adirondack Airport linked to the Massena, N.Y., FSS to help in general-aviation flight planning.
- Installation of a permanent DME channel to an existing VOR to help develop improved arrival and departure procedures at the airport.
- Establishing a temporary flight-restriction area to minimize the danger of flying sightseers over the Olympics.
- Participation in an airport-improvement program for Adirondack Airport, where about \$1.2 million in ADAP funds are provided for taxiway construction, runway grooving and lighting, obstruction removal and fencing.

In addition to the ADAP funding, DeRose says, "We estimate that this program means an FAA involvement that will amount to about \$400,000 in facility costs and FAA staffing and travel when the temporary tower is operational, apart from our time and other costs in attending meetings and other pre-planning activities."

There's much to be done in the two short years, and FAA is pitching in.

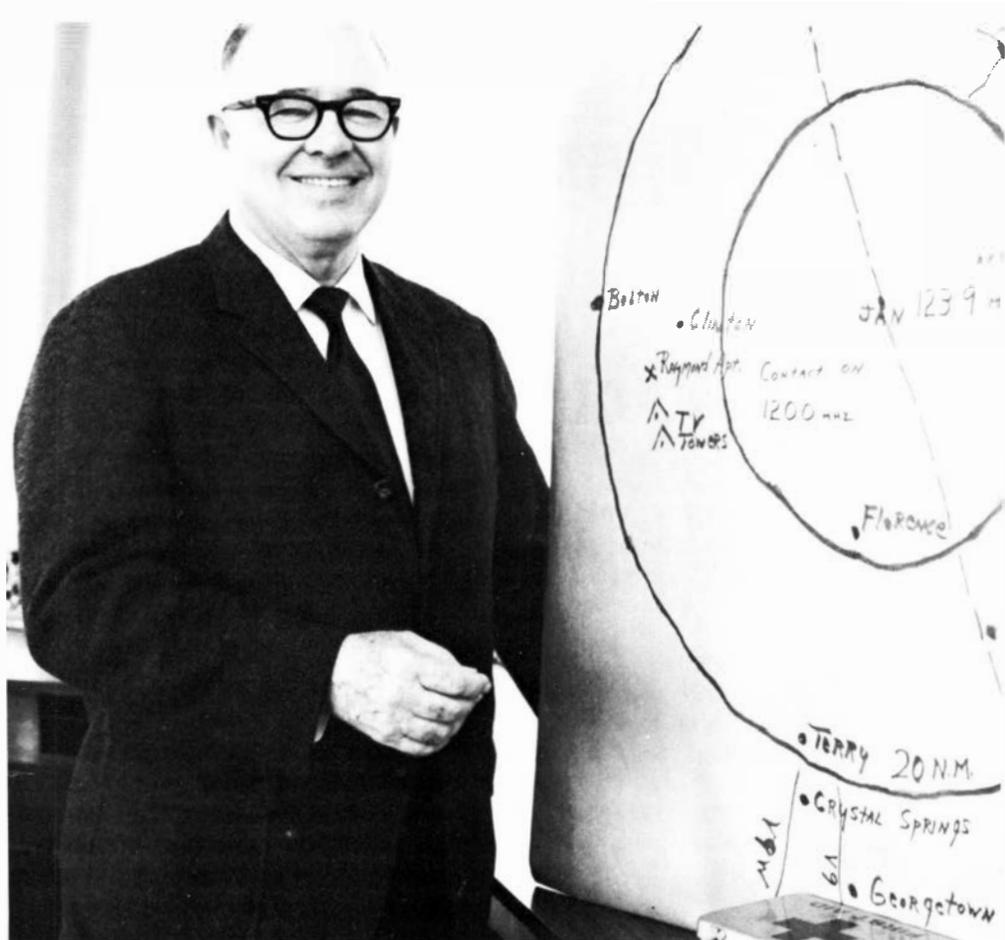
By Irving Moss

Chalet-styled Adirondack Airport terminal awaits a 250-fold increase in business.



Ralph Boozman knows the Jackson, Miss., airport area well, having been its tower chief for 31 years. Here, he helps explain to pilots Stage II Expanded Radar Service.

THE LONGEVITY CHIEF



Ralph B. Boozman is a landmark in Jackson, Miss. We won't say "monument" because that implies immutableness and the past, and Boozman is anything but an inert part of Jackson.

But ask any city or aviation official, the press, the Chamber of Commerce or a good many business people, "Who is Mr. FAA?" and the answer will invariably be, "Ralph Boozman, of course."

His credentials for all this are



Then and now—the Hawkins Field tower that Boozman first came to (left) was a military structure destroyed by fire in 1963. Jackson's modern municipal airport and tower are on Allen C. Thompson Field (above).

impressive: He has been chief of the Jackson Tower for 31 years and has put in a lot of time as local coordinator; his last stint has been six years. His tour as chief of the Jackson Tower—first at Hawkins Field and now at Allen C. Thompson Field—may well make him FAA's "Longevity Chief," with the longest tenure of any tower chief in one location.

Then, too, although he and his wife are Arkansas natives—he from Fort Smith and she from Fort Sill—Boozman lays claim to being descended from the founder of Jackson, Miss.

"I hadn't really realized it until I was in Jackson," Boozman said. "I knew my grandparents had moved from Mississippi to Oklahoma at the same time that the Choctaw Indians had. After I came here and began looking into Jackson history, I found out that my great-great-great grandfather, Louis LeFleur, a Canadian, founded a trading post on the Pearl River, which came to be called LeFleur's Bluff."

Later, when the site was selected to



he the state's capital, it was renamed Jackson in honor of Gen. Andrew Jackson, the hero of the Battle of New Orleans.

Boozman had always wanted to fly, and his opportunity came in 1941 while attending Arkansas State Teachers College in Conway. He enrolled in the Civilian Pilot Training Program.

He then learned of CAA's efforts to recruit controller trainees. Having earlier earned a BS degree in Business Administration from the University of Arkansas and now holding a private pilot's license—the qualifications for the job—he applied and was accepted for CAA's first formal air controller's school beginning Nov. 17, 1941, at Atlanta's Candler Field, now the William B. Hartsfield Atlanta International Airport.

There were 18 trainees scheduled for this six-week course, but history had other plans for them. Nine days

after the Pearl Harbor attack, Boozman was told to report to the Savannah, Ga., Army Air Base, a primary embarkation point. That lasted 30 days.

"The war was just beginning," Boozman explained. "There was a lot of shortage and reassigning of personnel and apparently they needed people at the Army Information Center in Charleston, S.C. I was on duty one night at the Savannah Tower when I received a call at 10 o'clock from the regional headquarters asking me if I could report the following day [January 17] in Charleston. That's the way it went in those days."

By April, he had requested reassignment back to the Savannah Tower. It was a hectic time, he recalls. There was one busy day when he had cleared for takeoff an embarkation flight of 86 B-26 bombers, one after another, to be followed by a variety of other military and civilian flights.

A Delta commercial flight called for clearance, which he granted, assigning a takeoff position of 102!

In June 1944, he transferred to the Charlotte, N.C., Tower. In less than a year, he transferred to the Atlanta Tower.

On Jan. 26, 1947, he made his last move—as a grade CAF-9 chief of the municipal control tower at Hawkins Field in Jackson. With the chief's job now commanding over \$35,000, it's a bit startling to realize that Boozman's starting salary as chief came to under \$4,150.

Circumstances led Boozman to his three-decade tenure at Jackson. He bid on one job early on, but after being selected, it was found that he hadn't enough time in grade. He was offered other positions, but with the chief's position at Jackson being upgraded grade by grade, "probably about as fast as I could have made promotions had I elected to take transfers, due to the increase in activity and complexity," he stayed put.

Besides, he didn't care for a staff position. "I liked the challenges in the field; I liked the challenge of being a manager of a specific facility and enjoying the decision-making of that job," Boozman said.

The only move took place in 1963 when a nearby aircraft caught fire one night and took the Hawkins Field Tower with it. The controllers operated from a temporary tower flown in the next morning until they moved into the tower at the new municipal airport at Thompson Field.

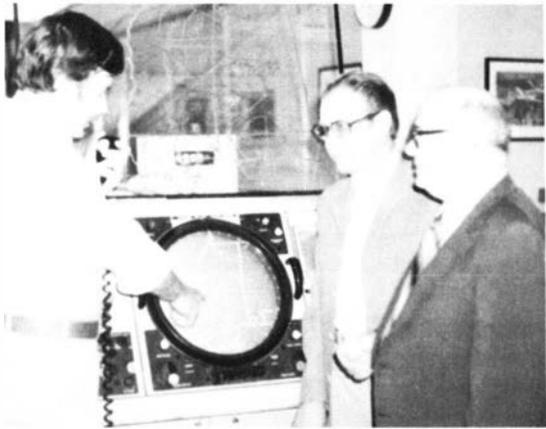
Over the years, Boozman has made his mark also as a local coordinator, a collateral duty as the representative of the regional director. The soft-spoken chief enjoys this second job and approves of its no longer being a rotating one. "It's one of diplomacy and public relations," he says, "and it takes time to get to know people."

He considers one of his greatest milestones to be his contributions to the local government and airport authority in helping to plan and design Jackson Municipal Airport, and he feels the plan is "right on target."

On the private side, Boozman is a member of the Jackson Exchange

This is CAA's first formal controller-training class at Candler Field, now part of Atlanta International. Boozman is fourth from right in the front row. Among others in the photo are Bill Ewing, Wes Knape, Tex Hogue, Wyatt Lewis, Jack Wright, Ed Cuyler, Frank Williams, Downers Grove, Frank Harrison, Newell Lepeard, John Worsley, Lodie Biggs, J. Henry, Mac McCullough, Al Cannon and H. Henry. Know any others?





As part of his local coordinator's job, Boozman (right) visits other local FAA facilities. Here, he's being briefed at the Jackson FSS by specialist Allen A. Moore III (left), as chief Don Hendrick observes.

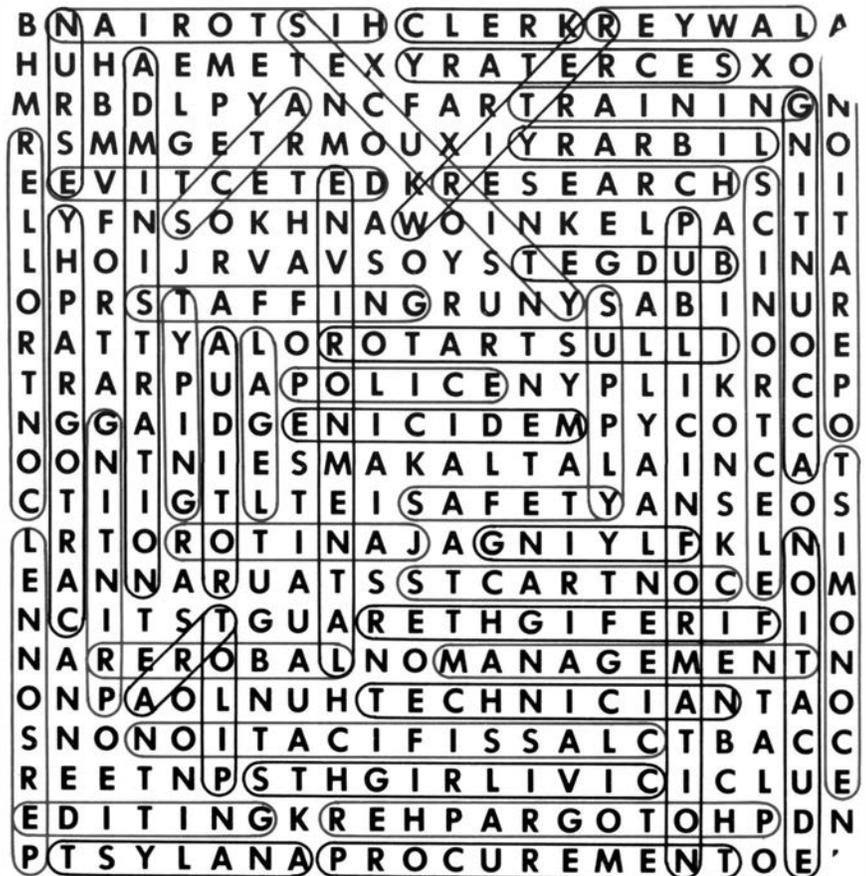
Club, the Airport Rotary Club, the Jackson Yacht Club (he has two sailboats) and a tennis club and is a vestryman in his church. His wife, Cornelia, is a premed graduate and both their daughters, Catherine and Cornelia, are law students.

He has garnered dozens of citations, commendations and letters of appreciation from within and without the agency and recently was awarded the Southern Region's Air Traffic Division Chief's Award for Outstanding Service. And outstanding is one way to describe Ralph Boozman.

By Gerrie T. Cook

Word Search Answer

Puzzle on page 6



The response to the "Word Search" puzzle has been excellent, and many of our readers continue to submit new ones. Don't be disappointed if you don't see your puzzle in print for a while—we are now booked through January 1979.

HEADS UP (continued from back cover)

L. Beck was promoted into the Baton Rouge, La., Tower as an assistant chief . . . A new assistant chief at the Oklahoma City FSS is **William A. Cummins** . . . **Humberto Garcia** was chosen for an assistant chief's spot at the San Antonio, Tex., FSS . . . Moving up to chief of the Roswell, N.M., Tower was **Thomas E. Castello** . . . The Houston ARTCC's newest assistant chief is **Bernard E. Crocker** . . . **William E. Becton** has taken over as deputy chief of the Houston, Tex., Intercontinental Tower . . . **Ruth C. Hubbard** was selected as chief of the Compensation Branch in Personnel Management . . . The new Plans and Program Branch chief in

the Air Traffic Division is **Frank C. Jaget, Jr.**

WESTERN REGION

The new deputy chief of the Miramar, Calif., NAS RATCC is **William R. Hadley, Jr.** . . . Promoted to deputy chief of the Davis-Monthan AFB, Ariz., RAPCON was **Benjamin C. Kennedy** . . . Selected manager of the Los Angeles ARTCC AF Sector was **Robert T. Cox** . . . **Weston Grady** was chosen as an assistant chief at the Long Beach, Calif., Tower . . . The Los Angeles FSS has a new assistant chief in **Richard Flores** . . . A pair of new assistant chiefs at the Oakland, Calif., Tower

are **Ronald W. Johnston** and **John F. Albright** . . . An assistant chief for the Oxnard, Calif., Tower is **James M. Lindsey** . . . The Deer Valley Tower in Phoenix, Ariz., is getting **Maurice D. Thompson** as an assistant chief . . . On board the Palmdale, Calif., Tower as chief is **James M. Knolton** . . . The Lancaster, Calif., AF Sector has a new manager in **Max C. Kelch** . . . **William J. Patterson** takes an assistant chief's slot at the Las Vegas, Nev., Tower . . . **James A. Bass** won his bid for assistant chief at the Los Angeles Tower . . . Promoted to chief of the Chico, Calif., Tower was **Richard S. Bradle** . . . Getting the nod as an assistant chief at the Palo Alto, Calif., Tower was **James R. Tokarski**.

DIRECT LINE



Q I am an Airworthiness Inspector (avionics) in a GADO. I have a commercial pilot certificate with instruments for single- and multi-engine land aircraft, plus a CFII ASMEI and a jet type rating. Couldn't I also be used as an Operations Inspector? I've been told that a person can only demonstrate expertise in one field. I feel that I could be better utilized if I were able to accomplish either or both functions each time I was in a position to do so, especially when workload far exceeds manpower, as it does now. Please give some thought to the possibilities here, and it would be understood that each person considered would have to stand on his own merits. Your reply is also of interest to a unit chief, an office chief and a division chief.

A This type of cross-utilization can be accomplished by establishing an appropriate position. Determining whether such a "mixed" position is needed is the responsibility of the line manager. It involves such considerations as the mission and workload of the organization, relation to other existing positions in the office, degree of responsibility and authority to be assigned to the position, etc. If such a mixed position is established, the person selected would have to meet the qualification requirements for both options.

Q It's rumored here that FAA policy is not to promote controllers over 50 years of age to supervisory or management positions. I have been shuffled back and forth at EEO offices when asking about it. I have been rejected on bids for supervisory positions, although I was advised that I was "best qualified." I'd like to know the ratio of over-50 candidates selected vs. under-50. Perhaps you can give me the figures without the unimaginative stock answer that discrimination is unlawful and, therefore, the FAA doesn't practice such!

A Of course, the "stock answer" has to be part of it. Merit Promotion Program procedures in your region and throughout the FAA are conducted without any reference to the age of candidates. Everything possible is done to insure adherence to agency policy, as stated in MPP 3330.1A, Para. 42, which prohibits such discrimination in selecting candidates. The masthead of MPP announcements carries the statement, "The best-qualified candidates will be selected for these positions regardless of race, color, religion, national origin, sex, physical handicap, age, marital status, political affiliation or employee

organization affiliation." As a result, there are no date-of-birth or age entries on the MPP application forms used in your region in lieu of the SF-171. Bidders on the MPP announcements in your region are rated in accordance with the provisions of the order and appropriate supplements to the order. There are no indications of candidates' ages on the promotion lists furnished to selecting officials.

Q A "Direct Line" query in the September 1977 issue asked why clerical positions were not upgraded along with the controllers and supervisors. Your reply states, "Should you feel that your duties and responsibilities have materially changed, you should consult with your immediate supervisor and, if appropriate, submit a request for a classification review of your position." Having those circumstances in an upgraded Level IIIb facility, I prepared a new position description, which the chief certified and forwarded with a request for a classification review or desk audit. This request was denied, and my chief said he could do nothing. Is this the proper way for this situation to have been handled? Wasn't a desk audit in order?

A The cited "Direct Line" does not state that a desk audit is always necessary when a position is reviewed. When duties and responsibilities are changed materially, the supervisor prepares a new position description and forwards an SF-52 to the Personnel Management Division requesting a review. The Personnel Management specialist who is delegated the authority to classify the positions will review the position description to determine if the desk audit is necessary. Desk audits are for the purpose of clarifying, verifying or gathering additional information that may be needed to apply the criteria in the position-classification standards to the duties and responsibilities of the position. Also, when further information is necessary, the supervisor or employee may be contacted by the specialist by telephone. Although a desk audit might be desirable, it is not always an absolute requirement. The important thing is that the individual classifying the position have sufficient information to properly determine the title, series and grade level of the job. Selecting officials, however, may select any of the names on the promotion lists and are not required to give reasons for non-selections. Since the ages of candidates do not appear on any of the documents in the MPP files, we can't give the ratio of over-50 candidates to the under 50s. Even so, it would be a meaningless figure since the ages of candidates and selectees vary so widely from announcement to announcement.

A FLEET OF LABS

Nan-50 is an Aero Commander and NAFEC's smallest aircraft. It is involved in area-navigation (RNAV) research and proving small-community microwave landing systems.



Flying in support of the center's collision avoidance system (CAS) tests is N-48, one of two Gulfstream 1s. It is also used for RNAV research and is equipped with avionics for CAT II flight for runway-lighting.

The other Gulfstream 1 is N-47, which is gathering wind-shear data and is also used for collision-avoidance testing.



The Convair 580 turboprop—N-49—is also instrumented for use in the development of CAS and has CAT II capability for the runway-lighting programs. It also sees service for Omega and Loran-C testing.

AA's laboratory for state-of-the-art technology experimentation is in the rooms, on the ranges and in the aircraft of the National Aviation Facilities Experimental Center (NAFEC) in Atlantic City, N.J.

Some of the more sophisticated testing is done in NAFEC's fleet of six aircraft, which range from a light twin to a four-engine jet. Each of the aircraft puts in about 400 hours of flying time each year, dictated by the schedule of the programs they are flying. The center has 14 test pilots.

Each plane acquired is converted into a test bed by the installation of equipment racks, power outlets and distribution boxes, and cutouts are made in the skin to accommodate interchangeable panels for the different antennas needed for various missions. When needed for a specific program that can't be accomplished by one of its own planes, aircraft are leased by NAFEC.

The latest addition to the fleet was a Boeing 727, acquired from Eastern Airlines for \$3.6 million that is intended for back-up flight inspection as well as experimental testing. It is replacing a DC-6.



The four-engine N-42 is a Convair 880, which is configured for testing ILSs and the time-reference scanning-beam microwave landing system, and contains the most advanced flight directors and a digital autopilot. It is NAFEC's largest aircraft.



The turbofan B-727 just purchased will inherit the designation N-40 and the flight-inspection recording package from the DC-6 it replaces. It will be used for engine-noise tests, long-range Omega and Loran-C tests, satellite-communication tests and Heads-Up-Display Evaluation tests, as well as continued FINFO flight-inspection support.



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Heads Up

ALASKAN REGION

Selected as manager of the Anchorage ARTCC AF Sector was **Billy W. Franklin**.

CENTRAL REGION

Sydney F. Alleyne has transferred into the Kansas City ARTCC as an assistant chief . . . The new deputy chief of the St. Louis Tower is **Glenn A. Bales** . . . **Don A. Peterson** has been promoted to deputy chief of the Wichita, Kan., Tower . . . Now an assistant chief at the Wichita FSS is **Bryan H. Burleson** . . . The Fiscal Services Branch in Accounting has a new chief in **Mary A. Bailey**.

EASTERN REGION

Getting the nod as an assistant chief at the JFK International Tower was **William J. Fedowich** . . . Now chief of the Airspace and Procedures Branch in Air Traffic is **Anthony Lepore**.

GREAT LAKES REGION

Now manager of the Akron, Ohio, AF Sector is **Robert G. Carson** . . . A new assistant chief at the Chicago O'Hare International Tower is **John P. Gorman** . . . **Richard S. Krepps** was selected for an assistant chief's slot at the Akron-Canton Tower . . . **Ronald W. Schultz** has moved to chief of the Jackson, Mich., FSS . . . **Gerald N. Linton** is now an assistant chief at the Wold-Chamberlain Airport in Minneapolis . . . **Robert B. Cross** is taking over as chief of the field office in the South

Bend, Ind., AF Sector . . . The field office chief in the Columbus, Ohio, AF Sector is now **Theodore D. Johnson** . . . The Youngstown, Ohio Tower welcomes **George J. Valacho** as an assistant chief . . . **Neil Polderman** was selected as an assistant chief at the Fort Wayne, Ind., Tower.

NAFEC

The new chief of the Program Branch of the Engineering Management Staff is **Harold L. Pascocello**.

NEW ENGLAND REGION

William J. Clemens, Jr., was selected as chief of the Plans and Programs Branch in the Air Traffic Division.

NORTHWEST REGION

Richard R. Lien has become the deputy chief of the Seattle-Tacoma, Wash., Tower . . . Chosen as assistant chiefs at the Pasco, Wash., Tower were **John W. Keller** and **Luther P. Koehler** . . . **Theodore J. Garrigus** won his bid for the chief's spot at the North Bend, Ore., FSS . . . Selected as chief of the Pendleton, Ore., Tower was **John Sardon**.

PACIFIC-ASIA REGION

The Kona Tower on the island of Hawaii has a new chief in **Ronald A. Lindner**.

ROCKY MOUNTAIN REGION

Transferring in as an assistant chief

at the Great Falls, Mont., RAPCON was **James E. Owens** . . . **James B. Blain** has been selected as chief of the field office in the Bismarck, N.D., AF Sector . . . **Donald V. Matulevich** got the nod for an assistant chief's spot at the Salt Lake City ARTCC . . . **Jerry D. Mabry** has risen to chief of the Labor Relations Branch in Personnel Management.

SOUTHERN REGION

George A. Brenner has moved in as chief of the Isla Grande Tower in San Juan, P.R. . . . **Max Ehinger, Jr.**, is now an assistant chief at the Balboa, Canal Zone, IFSS . . . **Thomas B. Cantrell** has reported in for the chief's job at the Muscle Shoals, Ala., FSS . . . **Lynn J. Montgomery** was selected as an assistant chief at the Fort Myers, Fla., FSS . . . **Baxter C. Sowell** has transferred to chief of the Dothan, Ala., FSS . . . A new assistant chief at the Atlanta FSS is **Jimmy L. Utley** . . . Coming to the Greenville, Miss., Sector Field Office as chief was **Jack C. Slaughter** . . . **Kay M. Luke** was promoted to chief of the Tamiami Airport, Fla.

SOUTHWEST REGION

Sidney E. Sheets is now an assistant chief at the Farmington, N.M., Tower . . . **Vernie R. Hafler** is now manager of the Fort Worth AF Sector . . . **Thom**