



HORIZONS

Read:
"Twentieth Century
Rough Riders"
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July 8, 1968

Cash Offered for New Aviation Safety Ideas

WASHINGTON—An agency-wide contest for the best safety cartoon suggestions has been announced by "FAA Aviation News," FAA's monthly magazine which promotes safety in the aviation community.

Twelve \$25 cash awards will be given for the 12 best entries.

The ideas will be drawn into safety cartoons by Robert Osborn, the famous cartoonist. The cartoons will be used in 12 succeeding issues of "FAA Aviation News" and in safety posters which are distributed throughout the country and abroad.

Escaping Irritant Gas Plagues Wake Employees

By George Miyachi

WAKE ISLAND—A mysterious gas—possibly a holdover from World War II—continues to be a source of irritation to Pacific Region officials, as well as to the eyes, noses and throats of islanders here who came in contact with it.

The gas, identified recently as Chloropicrin (which U.S. troops were warned against in World War II) is odorless. The exact source of the agent remains a mystery, but George LaCaille, Wake Area Manager, explained they may have narrowed down its location of the gas. Said he, "We think it's emanating from a spot off Peale Island."

The gas was first noticed five months ago, when Coast Guard crewmen stationed at the Wake Loran Station began showing up at FAA's dispensary with burning, weeping eyes, and a constricted feeling in the throat and chest. At first the doctors diagnosed the symptoms as the common cold. "Then," said LaCaille, "it appeared to be something in the air, but we didn't know what it was or where it was coming from." Meanwhile it was spreading, and more people were showing up at the dispensary.

At first it was thought the gas could be seepage from old explosives or from war bunkers which still pock Wake's landscape. But this theory was exploded by an ordnance disposal team flown in from Hawaii to investigate. The team was inclined to believe the gas to be biological in origin. LaCaille said, but it was still as much a mystery as ever when Dr. Jan Newhouse, a University of Hawaii marine biologist, ran a test which proved negative.

Bring In Chemical Experts

Baffled officials finally called on a U.S. Army Chemical Warfare Team at Schofield Barracks in Hawaii to assist in unraveling the mystery of the agent, which was continuing to send islanders to the dispensary. After testing of water and air samples, Lt. Col. Robert Pardee, head of the Army's team, came up with positive identification.

(Continued on page 7)

Each winner will receive credit in the issue of the magazine in which his cartoon-idea appears.

To enter the contest, explain in one typewritten paragraph (approximately 50 words), or in a rhymed couplet (or both), a general aviation safety problem frequently encountered in your area.

For example, if you feel that pilots should be cautioned about watching out for other aircraft while flying under Visual Flight Rules, you might write a paragraph similar to this:

"Pilots should be warned that so many aircraft may be using a limited airspace that they may get too close to one another, unless all pilots are alert and constantly watch for other aircraft. Being in contact with a radar-equipped control tower does not mean that pilots are being provided with safe separation from other aircraft at all times. There are times when their aircraft or others may not be visible on the radar scope. They must always be on the watch for one another."

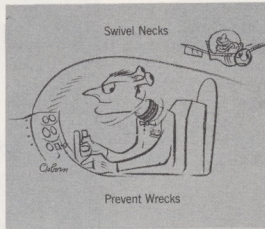
As an example, Cartoonist Osborn's treatment of this idea is printed with this story.

Or you might find you can best express the idea in a couplet like the one accompanying the cartoon.

Do not refer to cartoons published recently. Your idea must be new.

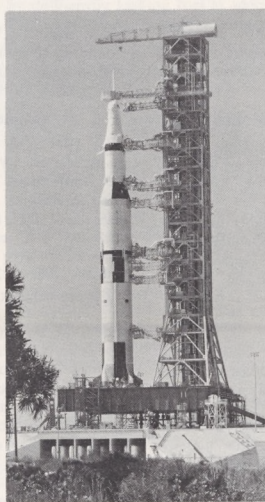
Entries will be judged by a committee composed of the Directors of the following agency offices: Information Services, Flight Standards Service and Air Traffic Service.

An employee may submit as many entries as he wishes—each entry will be considered individually for an award. A winning idea developed by the cooperative effort of more than one person will receive only one prize (\$25), but all



will receive credit for the suggestion.

All entries should be received by the Contest Editor, IS-20, FAA Headquarters, Washington, D.C. 20590, no later than July 31. Winners will be announced in early September. All entries become the property of "FAA Aviation News."



Saturn V

This 363-foot tall three-stage rocket will launch an Apollo spacecraft carrying astronauts to the moon. In their letter (below right) to General McKee, the astronauts call it their "short field take-off" vehicle.

Agency Fills Field Jobs To Peak 100%

WASHINGTON—The Agency has virtually reached its goal, as of June 30, of staffing field operating, or "firing line," positions at 100 percent of authorized levels. Many regions reported AT, AF and FS positions fully staffed. Those regions reporting less than 100 percent had vacancies amounting to less than one percent of their authorized staffing.

In the 14 months through May, FAA had hired 7,683 people. Offsetting these additions to the organization were 5,379 losses through resignation, retirement, transfer and similar actions.

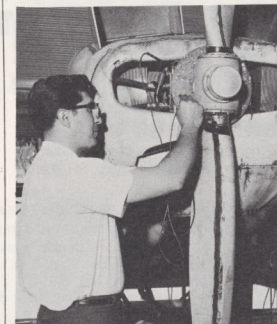
The net gain to the agency was 2,304 employees, more than 90 percent of whom occupy professional positions in Air Traffic, Airways Facilities, or Flight Standards. The agency has materially augmented its professional and technical staff with a net increase of 1,762 people in AT, 273 in AF, and 65 in FS positions.

Behind this success lies an untold story. It was necessary to hire almost 7,700 new employees to achieve the net staffing increase of 2,300.

In this process, however, personnel people and their operations teammates handled over 35,000 applications. Interviews were conducted, medical exams given, security clearances obtained, paper work processed, training begun—all by a highly competent team of FAA people.

The pipeline is now running efficiently. Although all authorized firing line positions are filled, there still remains the training to bring the recently-hired up to the journeyman level. But the process has been started and affirmative action taken to provide the necessary trained professionals to assure the continued high level of aviation safety.

(See recruitment chart, page 7)



What'll it Stand?

Anthony Barile prepares for an engine-stand test at NAFEC to check the vibration stress of a propeller. Tape along the center of the blades covers wiring to strain gauges cemented to the blades. The gauges sense stress levels which are recorded by instrumentation.

STAR-SPANGLED SAVINGS PLAN

Sign up for U. S. Savings Bonds, New Freedom Shares



Astronauts' Letter

Astronauts Thomas Stafford (left) and Eugene Cernan fly all over the nation in NASA T-38 aircraft in conjunction with Project Apollo. FAA Administrator McKee has just received the letter at right from the two, thanking the agency's air traffic control center personnel for outstanding and efficient service, based on the astronauts' personal flying experiences.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS 77058

JUN 18 1968

IN REPLY REFER TO: CB

General William F. McKee, Administrator
Federal Aviation Agency
800 Independence Avenue
Washington, D. C. 20590

Dear General McKee:

The travel requirements of Project Apollo have resulted in our crew traveling to all parts of the country in NASA T-38 aircraft. The air traffic control in several centers has been so outstanding that we would like to bring this fact to your attention. It is extremely gratifying for us to see that the centers and associated approach control facilities handling very heavy traffic are also capable of operating in a most efficient manner. In particular, the Los Angeles, Albuquerque, and Chicago centers have been outstanding in handling in-flight traffic, as well as approaches and departures.

We wish that you would forward our appreciation for the effective and efficient service which these centers have afforded us on many occasions and under all types of weather conditions. We feel our appreciation should be brought to the attention of the individual controllers who have helped provide this service. Our thanks to you and your entire organization for the efforts in furthering the safe growth of air travel in the United States.

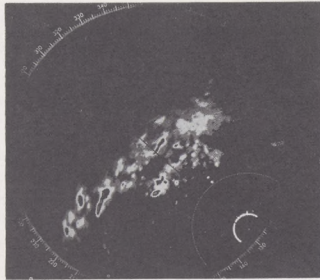
We extend to you, General, our personal invitation to visit Cape Kennedy and witness the latest version of our "short field take-off" vehicle!

Sincerely yours,
Thomas P. Stafford
Lt. Colonel, USAF
NASA Astronaut

Eugene A. Cernan
Commander, USAF
NASA Astronaut

89, W 22 6 02 MP

Storm cells, showing up on radar such as this, become the target of the aircraft that will penetrate the areas for study.



He Directs Them into Severe Storms

Twentieth Century 'Rough Riders'

By George Burlage

NORMAN, Okla.—During the spring months Howard Murphy gives orders to a bunch of "Rough Riders" who inhabit Tornado Valley above the Oklahoma plain. He is an air traffic controller, and the "Rough Riders" are pilots who fly for the National Severe Storms Laboratory's project bearing that name.

Sending pilots on a rendezvous with turbulent weather is old stuff for Murphy, who normally is Assistant Chief of the Oklahoma City TRACON/Tower. Each spring, he moves to nearby Norman to serve as the project's only air traffic controller.

"My job is strictly air traffic control," Murphy said. "My only function is to put the aircraft where the laboratory wants it. There could be aircraft damage if it went into any storm—we have to pick them."

And there is a variety from which to choose in this area of frequent spring storms, ranging from thundershowers to tornadoes. The study of the storm situation usually runs from April to June.

"It is our purpose to understand more about severe local weather—to be able to forecast these phenomena more accurately," said Research Meteorologist Jean Lee. "We want to observe the indications of severe thunderstorms and what makes tornadoes."

Lee, who serves as administrative officer and heads the "Rough Rider" project, said these various studies include the number of

clouds in a particular area, how high the clouds extend into the atmosphere and the amount of turbulence above clouds at extreme altitudes.

Predicting Weather 500 Miles

How will all these affect the flight of aircraft—for example, the SST—when weather must be accurately predicted for 500 miles ahead of the plane?

Three different types of flights are used to gather information. High altitude turbulence measuring equipment is carried into the upper altitudes by the RB57F. Turbulence is measured and cloud formations photographed for later study of their characteristics.

The C-141 is used in the basic work, making radar comparison studies between the capabilities of airborne radar and ground weather radar.

Penetration of the cloud formations is now achieved with F-100 and other fighter-type aircraft. There is a special study with a T-33 to measure thunderstorm turbulence, magnitude of updrafts, distribution in cloud temperatures and moisture.

Murphy sets up patterns for the objective given him by the weather technicians after analyzing the current weather situation. His tools are a modified CPN18 radar scope, a WSR57 weather radar and a height finder. He maintains positive control up to 110

miles, with the Fort Worth Center control extending to 200 miles. Control from 10 to 100 miles is preferred, for better data with less ground clutter.

Samples Help Analysis

In 1960, the first year of the project, pilots started by "shaving" the outside of the storm area, and gradually worked toward the center. More than 1,000 penetrations have been made in storms of varying intensity. Lee explained that that many samples can give a good analysis of weather patterns above 22,000 feet.

Lee referred to May 15, when weather forecasters predicted conditions for 47 tornadoes in the midwest. Actually, 62 were reported, including the disastrous ones in Arkansas and Iowa. "Predictions of exact locations of these tornado occurrences cannot be made, but some success has been achieved in predicting the general area where they will occur," Lee said.

In comparison with another type of turbulent weather—the hurricane—thunderstorms are of short duration, making it difficult to study where a tornado may break out. Hurricanes, on the other hand, build up and move steadily in a direction. Study of hurricanes can be more accurate and their movements more predictable.

Aircraft used in the study of thunderstorms are kept away from the major air-

ways and require at least 5,000 feet separation to allow pilots to do things that other pilots are not allowed to do—fly into thunderstorms. "But we know what we can and what we can't go through," Murphy said. "So we sort of work in the middle, between extremes."

Lab People Pick Storms

"The lab people pick out the storm they want to penetrate and the portion they want, and it then becomes my job to put that aircraft there. In getting this done, we just don't drill through the middle."

In these situations, the problem becomes one strictly for air traffic control. Coordination is kept with the Fort Worth Center by direct line for the assignment of routes and altitudes. Two VHF and two UHF communication channels are assigned to the project. If an aircraft leaves the Fort Worth Center's area of responsibility, for example, into the Kansas City area, coordination is effected by Fort Worth.

"The project has been run so long there is no difficulty in working it," Murphy said. "Fort Worth Center does a great job, and this cooperation permits us to do with aircraft exactly what the lab wants."

The Rough Rider Project was originally seasonal work, but in 1964 it became a year-round operation. The data that are collected in the spring are processed during the summer and analyzed during the remaining months. All voice transmissions from pilots are taped and all video weather information and cloud formations photographed for use in this study.

Thirty-four full-time and six part-time employees are assigned to the laboratory, under the direction of Dr. Edwin Kessler. Data are used by cooperating contractors, including the Universities of Chicago, Michigan, Oklahoma, Washington, Connecticut and Florida State.

Also helping in the project are: the Air Force, which contributes logistical support in aircraft; NASA and the Atomic Energy Commission. For several years the British Meteorology Office and Royal Aircraft Establishment have participated, as has the National Research Council of Canada.

The British formerly flew their own aircraft, but since 1965 have participated only in the studies. This year, the Canadians flew penetration flights in the T-33. Most of the planes fly from Tinker AFB in Oklahoma City, with the C-141s coming from Kirkland AFB, in Albuquerque.

Pilots and laboratory technicians alike give Murphy credit for being the key man in getting the planes "on target." Most recall the day when, at one time, Murphy had eight aircraft, ranging from a P-38 to a U-2, under control toward their objectives. Since then, pilots have had great confidence in the project and Murphy's ability to get them to where they want to go.



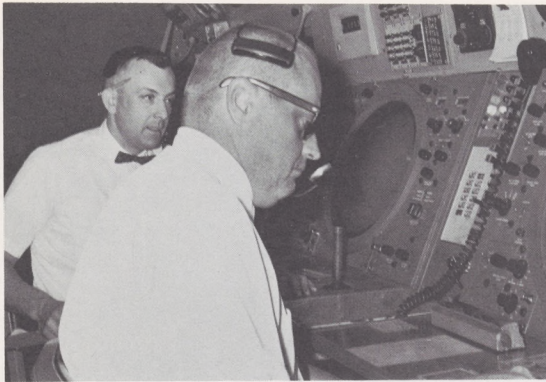
Howard Murphy, Assistant Chief of the Oklahoma City RAPCON/Tower, checks his scopes during a "Rough Rider" maneuver. He has been assigned to the "Rough Rider" Project each spring since it was started. He gets the aircraft where it can do its research and study.



Jean Lee, research meteorologist, head of the airborne project at the National Severe Storms Laboratory, points out hail damage on the wingtip of an F-100 to Howard Murphy. Lee has the wing section in his office to show visitors why the project is called "Rough Rider."



Home of the National Severe Storms Laboratory at Norman, Okla. Four radar units are visible (the fourth is enclosed in the sphere at right).



Lost Airplane

Controller John Resser (left) and Paul Tobin of the Omaha RAPCON show concern while guiding a plane lost somewhere in the clouds out of trouble to a safe landing.

ATCs Guide Non-IFR Pilot to Safe Haven

By Dave Myers

OMAHA—It was 4:30 p.m. on a routine day when Paul Tobin, controller at the RAPCON here, heard a call from an aircraft. Tobin was just barely able to make out the pilot's message.

He was lost in the clouds. Finally, radio contact was established. Through questioning, Tobin learned that the aircraft was not equipped for instrument flying, nor was the pilot IFR-rated.

After several attempts, Tobin succeeded in identifying the plane on radar and proceeded to guide him to Omaha's Eppley Field. On issuing vector headings, however, Tobin observed that the pilot did not fly the assigned headings but was wandering erratically.

When the pilot experienced further difficulty in finding Epply, Tobin decided to guide the pilot to Offutt AFB. The weather there was slightly better, and Offutt is equipped with precision approach radar. Tobin guided the pilot toward Offutt and transferred responsibility to John Resser, who was assigned to the Offutt Sector.

For 30 tense minutes, Resser repeatedly attempted to align the airplane with the 10,000-foot long runway. The pilot, however, was experiencing vertigo, and the air-

plane blip was frequently observed to turn when it should have been in straight flight, or to turn in the opposite direction to that issued by the controller.

Resser, in talking calmly and encouragingly to the pilot, finally succeeded in aligning him on the final approach and in range of the precision approach radar. The PAR operator, T/Sgt. Donald L. Petersen, USAF, carefully guided the plane through to final approach to the runway where it landed safely 37 minutes after the first plea for help was heard.

The pilot had not been alone in his distress. In the plane with him were his wife and her parents.

In a letter to Regional Director Edward C. Marsh, Charles Cushman of Des Moines, Iowa, the pilot of the plane, expressed his appreciation: "... Your RAPCON people, I'm sure, detected our inexperience and dropped their usual technical jargon in favor of down to earth terms, which I might add, was definitely in our favor. To make a long story short, 37 minutes and 10 pounds of sweat later, Cessna 9210A was on the ground and happy to be there. There is no question in my mind that without your radar facilities, we would never have made it."

Rotate for Air Safety

Examiners Praise 'Switch'

BROOMFIELD, Colo.—The Denver GADO at Jefferson County Airport has discovered another approach toward the objective of improving pilot safety standards.

R. H. Lewis, Supervising Inspector at the GADO, says a test project in which pilot examiners are rotated is working out extremely well. The examiners are highly-qualified chief pilots or instructors with flight schools.

Ten of the FAA-designated examiners in the Denver Area volunteered to check pilot applicants not associated with the examiner's particular flight operation.

"The results so far have been excellent," Lewis said. "Examiners gain a broader picture as they see operations at other schools and pick up good operating practices which may be used at their own schools."

By working with students of other flight schools, examiners are

able to fly varied type aircraft and operate a variety of airborne equipment.

"Under this system, the examiners discuss check rides with examiners at other schools, bringing about better standardization of examining procedures," Lewis said. "In each case, examiners send an evaluation sheet to the school involved and weaknesses are corrected."

Another benefit of the rotation system is that students do not know ahead of time who they will be required to ride with, and thus cannot tailor their behavior to a known examiner. In general, the flight tests given are more objective.

Lewis reported that the examiners themselves are enthusiastic about the rotation program. He feels the new system will materially benefit safety aims by allowing a more objective, realistic appraisal of new pilots.

Nacelle Fires Data Under Study

ATLANTIC CITY—Year-long fire tests of an engine nacelle conducted in a wind tunnel at NAFEC were completed recently.

The tests were conducted to improve fire protection of small jet aircraft. More than 180 test fires were run, according to Project Manager Daniel E. Sommers. Also active in the project were William E. Neese, Thomas K. Taylor and George R. Johnson.

"The tests were not engine fire tests but nacelle fire tests," Sommers emphasizes. Some of the things examined, he reports, are detection devices and extinguishing systems. Fire resistance of nacelle structure also come under study.

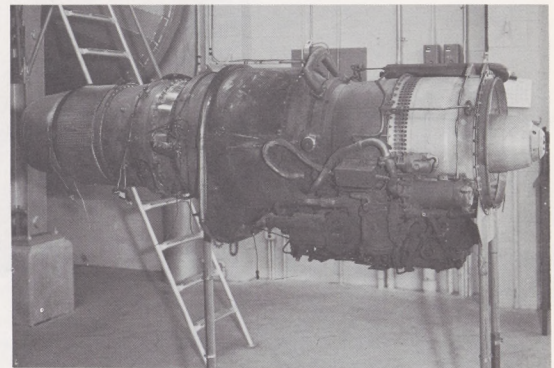
"For the tests, airflow speeds in the tunnel ranged from .5 to .7 Mach," Sommers says, "with engine power varied from cruise settings to 100 per cent."

The nacelle was instrumented with more than 80 pick-ups to record air temperatures, and temperatures along the engine case and nacelle skin. The fires were started by deliberately leaking fuel at specified points along the engine. Affects

of fire and how it can be detected, controlled and extinguished were noted.

Data recorded during the tests

are now under study. A technical report containing conclusions and recommendations will be published later this year.



Jet Black

A small-jet engine, removed from the tunnel after nacelle fire tests, shows effects of flames. Fires were started by leaking fuel along the engine.

'Second Careers' Open to Retirees

WASHINGTON—Retired? Planning to retire? Know a retiree? Educational institutions throughout the country may have a job for you.

Responding to the growing need for highly skilled personnel in the aviation industry, a number of institutes of technology, junior and community colleges and other institutions of higher education, as well as high schools, are initiating or expanding their aviation technology curricula.

These institutions need technical instructors and instructor aides who have experience in areas including the National Airspace System, airspace utilization and air traffic management.

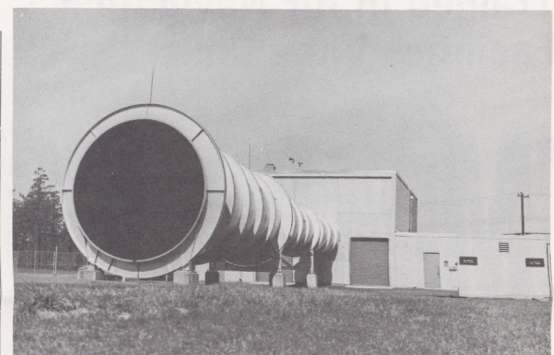
FAA is assisting by providing lists of potential instructors from among retired or about-to-retire agency employees.

The California State Department of Education is seeking candidates for 20 instructor positions at junior colleges throughout the state. Salaries for full-time instructors (a teaching load of 12 to 20 hours per week) range from \$7,500 to \$10,000. Part-time instructors will average about \$10 per hour for teaching three hours, two or three nights a week.

Applicants must pass a physical exam that is not so demanding as the Class II Medical. Technical experience must include at least three years at the full journeyman level. The instructors selected will be covered under the state's retirement system or the Social Security system. They will have health insurance and other fringe benefits. Those hired into the California system will be given appropriate instructor teacher training.

Green River, Washington Community College, has an immediate opening for an instructor in air traffic control. Salary range for this position is from \$8,186 to \$14,984, depending on the applicant's education and experience.

Anyone interested in the possibilities of such a "second career" should send a resume of his experience and education to the Associate Administrator for Personnel and Training, Attention: Larry Bott, PT-19.



No Fan

Diameter of NAFEC's air tunnel tube at the test section is five-feet smaller than the exit end of the tunnel shown here. The tunnel has no fan, but gets its airflow from exhausts of two jet engines ducted into the tube below the test article. Air speeds can reach over Mach 9.

Big Turnout . . .

Controllers and Pilots Meet

FLINT, Mich.—More than 100 enthusiastic pilots turned out for the Third Annual FAA Controller/Pilot Forum held recently at Bishop Airport.

Hosting the forum was Ray Kerwin, Flint Tower Chief.

The program included presentations on various topics of interest by controllers from the tower. Russell Lincoln explained VFR procedures to the group, while Donald Wyatt discussed IFR procedures. Pat Pequet outlined the proposed plan for air traffic in high density

terminal areas, and Ray Bean discussed "Special VFR" procedures and tower problems.

The program also included remarks by Detroit GADO Chief David Kress on the agency's new general aviation accident prevention program.

Other participants included Chicago Area Flight Standards Chief Tom Davis, and Detroit GADO Inspector Verdun Klimenthagen.

A lively and informative question and answer period followed the presentations.

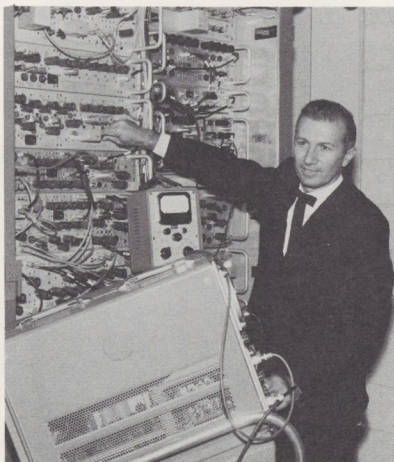


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Carl A. Rosati, stationed at San Juan, P.R., as an electronics technician, recently became the 50,000th graduate of the FAA Academy's Air Navigational Training Branch.

Trained in Air Navigation Facilities Vital Skills:

'Mr. 50,000th'

OKLAHOMA CITY—When Electronics Technician Carl A. Rosati of the Southern Region received his graduation certificate for the airport surveillance radar course recently, he received another important distinction. Rosati became the 50,000th graduate in air navigation facilities training from the FAA Academy.

Air navigation facilities training began in Fort Worth, Tex. in 1942 and was moved to the Aeronautical Center in 1946. The first class (22 students) to graduate from the Aeronautical Center in 1947 studied only the instrument landing system. Rosati, some 20 years later, was one of 120 students completing work in 10 different technical subject areas.

Changes have been the order for air navigation facilities training as the temporary buildings gave way to permanent structures at the Aeronautical Center. The single course curriculum offered in 1947 has expanded to 57 different technical areas. Courses today vary from one-half week to 36 weeks in length. Equipment unknown in 1947 is now a necessity in the Federal airways system.

Included in the 50,000 engineers and technicians who have graduated from the Air Navigation Facilities Training Branch have been representatives of 75 foreign countries. In addition to agency personnel, there have been students from the Weather Bureau, the Army, Air Force and the Navy. Special courses have been developed, when a national need existed.

Recently completed contract training programs include equipment maintenance training for the Signal Corps on equipment going to Vietnam and apprentice training for civilian employees at Tinker AFB.

Training today involves approximately 150 instructors, who also develop training materials for the ANF Training Branch. In all, there are 395 training manuals, with some 385,000 pages. Training mate-

rials cover all equipment used in the Federal airways, and are provided in three convenient forms: Resident, Directed Study and On-the-Job Training.

For management control, the branch is divided into four career training areas:

Communications Training

This career training area is directed by Harold Swenson, and covers subjects ranging from an indoctrination course to complex electronic and electro-mechanical subjects. Beginning agency technicians will probably receive their first Academy training in this section. A staff of instructors is charged with teaching students about the equipment to insure correct operation to maintain flight communications. Not only voice communications, but also the lights on the runways and the motor generators to maintain electronic equipment when commercial power fails are elements of this 22-subject career field.

NAVAIDS Training

The first subjects taught at the Aeronautical Center were in the NAVAID career area. Today, Emory Williams is responsible for the training in subjects such as the VOR, TACAN and ILS.

Radar Training

Robert Brown, Jr., oversees this technical training area. The training not only involves producing targets on air traffic oscilloscopes simulating various problems, but the radar technician must maintain microwave link equipment and beacon identification equipment. Radar is one of the primary sources of information for the NAS enroute Stage A installations.

Data Processing Training

Harold Scott is responsible for training personnel to maintain the complex NAS enroute Stage A air

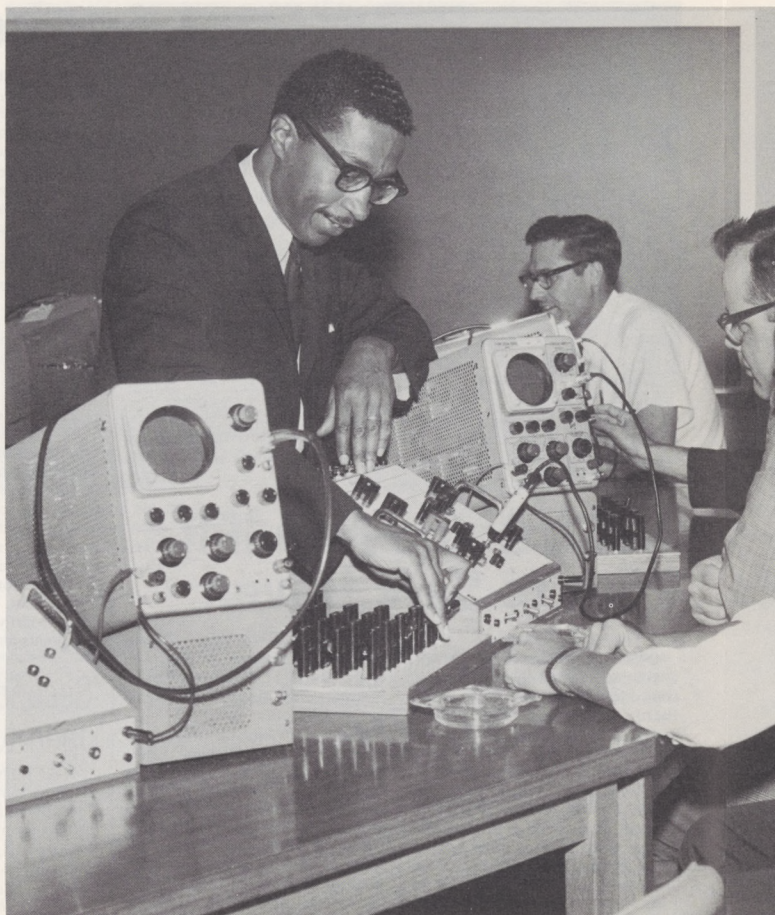
traffic control system. Subjects taught in this career area vary from an introduction to computers to the maintenance of the IBM 9020 central computer complex.

A new concept of teaching electronic maintenance has evolved in the data processing field. In the 130 training manuals used in the 36-week central computer complex training program, there are no schematic diagrams. Logic (electric) circuits (AND, OR, NAND and NOR gates), when used with prepared test programs, substitute for conventional troubleshooting techniques.

Directing the Air Navigation Facilities Training Branch since 1954 is Charles W. Mueller, who joined the CAA after serving as a Naval officer in World War II. Mueller has guided the branch through its growth years by utilizing his experience as an electronics engineer and educator. Mueller graduated in the first class at the Aeronautical Center and later became an instructor. In 1948, he developed the first instructor training program and the first management programs.

In addition to training more than 50,000 students in the past 21 years, the ANF Training Branch has provided two other valuable by-products to the agency. First, approximately 100 engineers were developed for FAA from the instructor complement of the branch. These employees moved to the branch from the regions as technicians. By taking advantage of educational opportunities in Oklahoma City, they were able to pass the Civil Service Commission engineering examination.

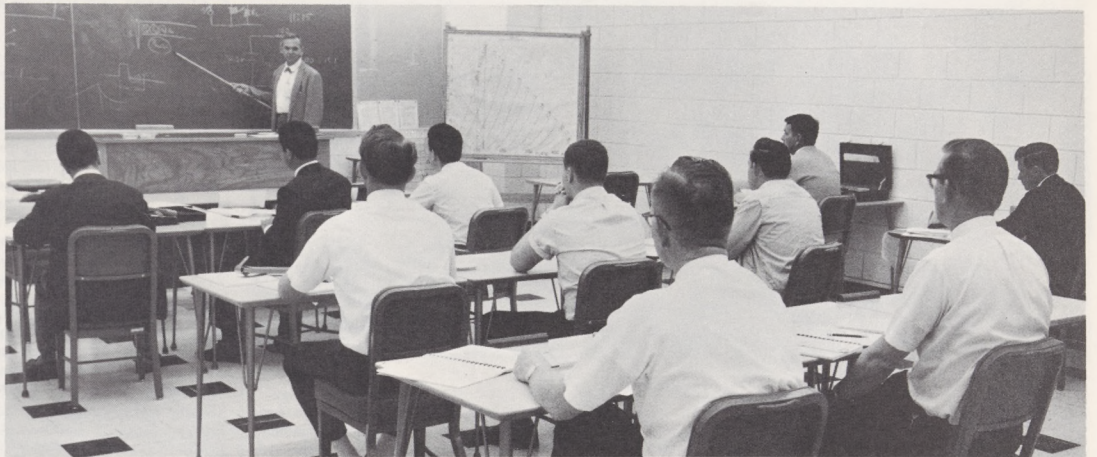
The second valuable by-product to the agency has been that many former instructors now hold important agency positions. A few examples are: Mervyn Martin, Director of Systems Maintenance Service; John Shaw, Assistant Area Manager, Kansas City; Walter Fricks, Executive Officer, NASPO, and William B. Brown, RD-250.



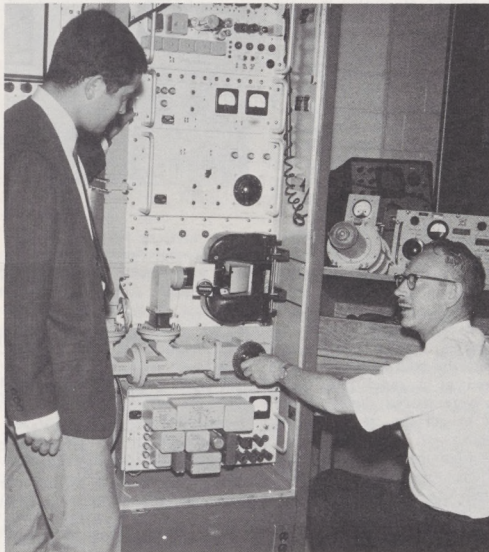
Instructor Daniel Hill provides guidance in the timing circuits laboratory to Robert Leader (center)



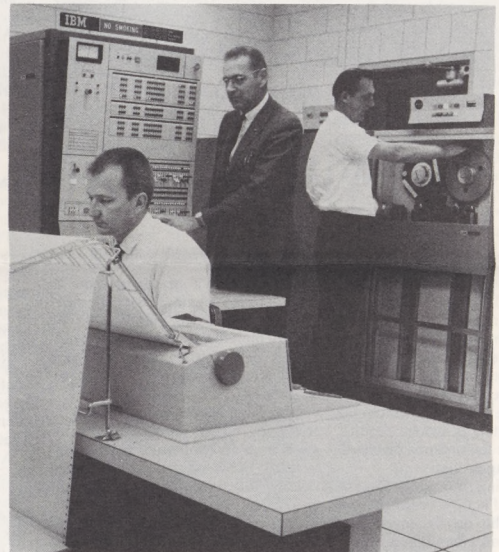
Enter (center) and Charles Patterson (front).



Instructor Bill Enter explains timing circuits to his class in basic radar.



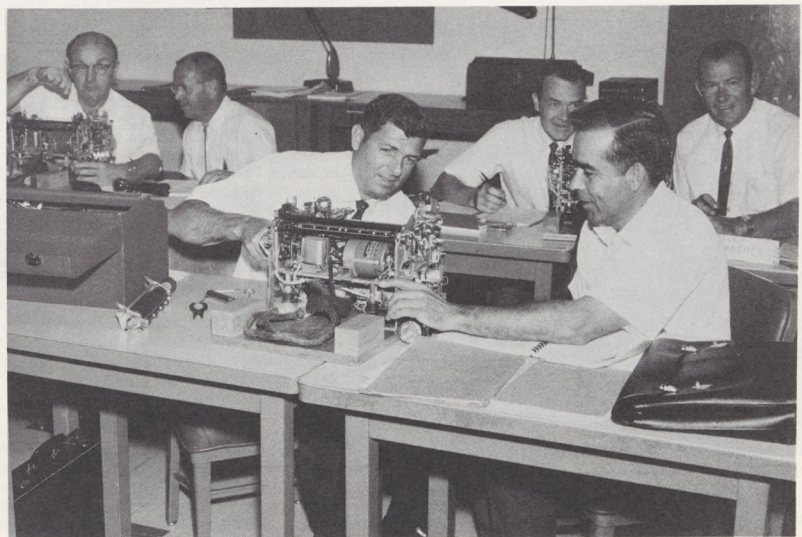
Alejandro Egido (left), international student from Madrid, Spain, observes adjustments to the airport surveillance radar made by Herbert Hern.



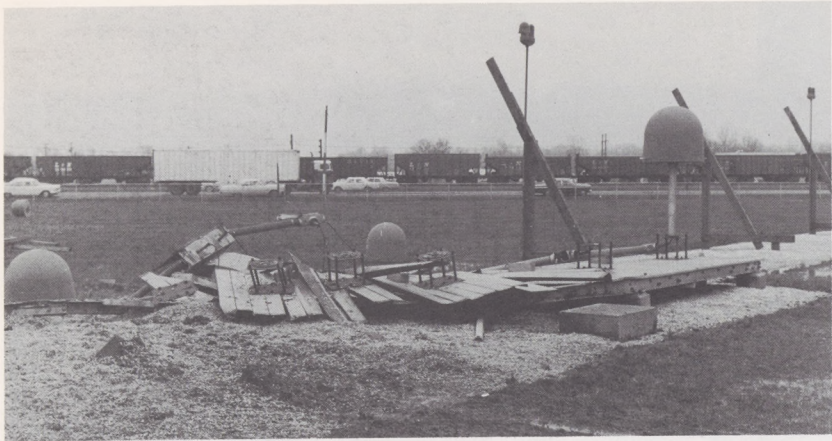
The Central Computer Complex will operate after Keith Nease (seated) types in the command and Dan Hegar (center) checks operating console. Roger J. Simoneau loads a tape driver.



If there is power blackout, Ray Rutherford (left), and Fred Kaufman will be able to get a standby generator working.



Learning the intricacies of the flight data printout equipment are: (front row, right to left) Nick Galleos, Pete Patterson; (back row, right to left) Bill Thrasher, Bill Rea, John Towey, and Ray Lombard.



Clobbered

The Evansville, Ind., localizer lies in pieces after a twin-engine aircraft slid off the end of Runway 21 and went through the localizer antenna array. The plane was making a routine approach to the field during a heavy rainstorm when an engine failed. Luckily there were no serious injuries in the mishap, despite heavy damage to the ILS.

Crew Reconstructs Smashed ILS

By Neal Callahan

EVANSVILLE, Ind.—When a vital part of the airport's instrument landing system was put out of commission here recently by an airliner which overshot the runway, an essential FAA facility was wrenched from operation.

In bad weather, the ILS enables IFR pilots to land with visibility as poor as only a half-mile and ceiling down to 200 feet. Without the ILS, Evansville Airport's 300 daily operations—of which 38 are air carrier arrivals and departures—suddenly had to bank on every day's flight weather being strictly VFR.

The plane that ran straight through the localizer antenna at the end of Runway 21 did \$20,000 damage to the system. Although the other three parts of the ILS—the glide slope, middle- and outer markers—were not damaged, they were of no use without the antenna. It was estimated it would require 30 days to get the antenna repaired and functioning properly.

The following morning, Evansville Airway Facility crews began cleaning up the debris, estimating the damage, and compiling a list of needed materials to restore the localizer to service. Bob Worthington, Don Eastman, Gordy Wiley and O. R. Ormand began the job in heavy mud. Reconstruction of the system began that day.

Assistance from the Indianapolis Airway Facilities Field Office and the Chicago Area Office began arriving almost immediately. From Indianapolis came Dan Reid, Chuck Saxton, Ralph Oxford, Bernard O'Dea, Wes Kempf, Bob Rigsy, Don Lavey, Jim Mathews and William Marshall. From Chicago came Howard Willis, George Neuhaus, Harley Felker, Samuel Bryan, Raymond Shinskie, Oscar Perigo, Warren Walsh, Milan May, Harry Scharlach and Richard Schmidtmann.

Had To Rebuild Antenna

After a check of the system, it was determined that the antenna system had to be completely rebuilt, including the large wire screen behind the array and the small screen behind the carrier antenna pair.

The large screen consisted of 21 wires spaced six inches apart with an incline of 28 degrees back from vertical. This screen is approximately 200 feet long, with tapered end wires. The small screen is 36 inches by 40 inches. The location of these screens is extremely critical in the accurate operation of the localizer.

After 10 days of continuous hard work, the localizer installation was complete and ready for flight check and final adjustments.

The Battle Creek FIDO dispatched Bryson Lloyd and his crew, Leo Blakely and N. H. Burch, to flight check the facility.

All was not well. The initial flight check indicated excessive roughness beyond the middle marker.

However, other flight checks prior to the accident had revealed a similar history and Airway Facilities personnel had anticipated the problem.

Couldn't Pass Flight Check

This necessitated controlled experiments with both the small carrier screen and the large 200-foot screen. A modification was made to improve the system, but it still lacked the requirements to pass the flight check.

Despite the cold and rain, work continued at a rapid pace. The screens were moved slightly in an attempt to get the system within limitations.

After a few minor adjustments to the system, flight checks revealed the system was functioning properly and by 5 p.m. the localizer was back on the air.

Original estimates indicated it would take some 30 days to restore the system into service. Thanks to the efforts of Evansville, Ind. and Chicago Airway Facilities personnel, the work was accomplished in half the time, despite extremely adverse weather conditions.

Director Appreciates Job

Edward C. Marsh, Director of the Central Region, in a dispatch to Paul E. Cannon, Chicago Area Manager, noted that he was highly pleased with restoration of the ILS to service. Marsh commended the many FAA people who contributed to the early restoration of the localizer.

Praise for the outstanding accomplishment was also received from W. F. Wood, of Eastern Airlines, who said, "We sometimes fail to realize just what this installation means to our day to day operations, until we must be without it." He extended Eastern's thanks for a job "well done."

Praise also came from Kent Emary, of Lake Central Airlines, who expressed Lake Central's appreciation. Mr. Emary's letter stated "Our ILS was returned to service in a minimum time under adverse conditions. Because of your fine efforts, we encountered a minimum of flight delays.

'Troubleshooters' Help Dedicate New Airport

DENVER—Prior to the recent dedication of the Arapahoe County Airport near here, problems of both air traffic and ground traffic were anticipated by county officials.

FAA was asked to supply a temporary tower. This was provided through the efforts of the Denver Area Office. Denver Tower controllers Terry Harpley and Robert Baxter were assigned to man the temporary facility. During its one day of operation the temporary tower clocked 563 aircraft operations.

Air traffic moved smoothly, but the Colorado Highway Patrol reported many delays and traffic snarls on the ground as thousands of family cars jammed the single

access road into Colorado's newest airport. Approximately 20,000 attended dedication ceremonies for the \$4,000,000 field. Included were Senator Peter Dominick, Representative Donald Brotzman and FAA Denver Area Manager W. A. Stephens.

The new field was built as a much needed "reliever" airport to take the strain off busy Stapleton. Since Arapahoe County Airport has opened, the new field has done just that, diminishing Stapleton's air traffic workload by some 200 flights per day.

Arapahoe County Airport is already averaging considerably more than 70 itinerant flights per day. The total is expected to increase.



Tower 'Al Fresco'

Plenty of fresh air and plenty of space are enjoyed by Denver controllers Terry Harpley (left) and Robert Baxter, as they man a temporary tower to serve heavy traffic at Arapahoe County Airport 10 miles south of Denver during recent dedication of the new field.

Agency and State Officials Direct

192 Graduate from Clinic

FREDERICKSBURG, Va.—A record total of 192 private pilots received graduation certificates at the conclusion here of the recent three-day Flight Instructor and Pilot Upgrading Clinic.

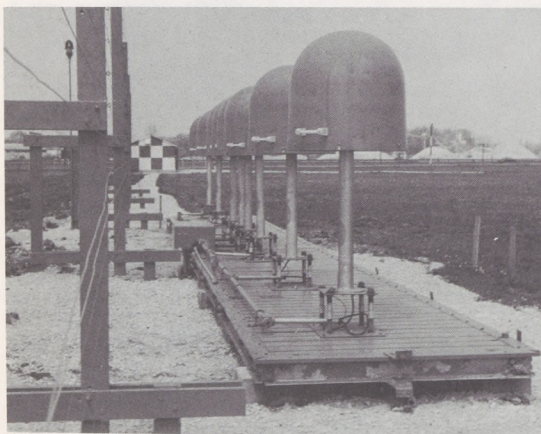
The clinic was co-sponsored by the FAA and the Virginia Division of Aeronautics.

The graduating group included 35 flight instructors, who were revalidated on the basis of complet-

ing the course and three who were renewed by flight check.

Working closely with Virginia aviation officials in arranging and conducting the course was Hamilton Gowin, Chief of the Richmond GADO.

A letter of appreciation was sent to Gowin by Jesse W. Dillon, Commissioner for Aviation, and Willard G. Plentl, Director, Division of Aeronautics.



In Service

Just 15 days after being clobbered, the Evansville localizer is restored to full operation. Praise for work "well done" came from Regional Director Edward C. Marsh and from the airlines.



Something Old and New

In the photo at left Lt. Col. Thompson (back to jeep), Base Commander at An Khe, discusses the history of a 19th century French planter's home which formerly served as base for the field tower with crew members. At right, standing proudly in front of the new tower they outfitted electronically, are (left to right): Paul Welch, Chief of all crews; Jim Weaver, crew chief Tom Wallace; Charley Price and Bill Hoppes. This crew was at Chu Lai at the opening of the Tet offensive, and earned the reputation for carrying out their duties under extremely difficult circumstances.

Direct Line!

This is your direct line to the top. Your questions will get answers! Employees are encouraged to discuss questions with their supervisor or local P&T office. However, if this is not convenient, questions addressed to Joseph H. Tippets, PT-1, FAA, 800 Independence Ave., S.W., Washington, D.C. 20590, will be answered. All questions should be signed, and concern only personnel and training programs, policies and procedures. What's your question?

Question: I notice that the qualifications for the position of General Aviation District Office Accident Prevention Specialist are weighted in favor of the General Aviation Operations Inspector rather than the General Aviation Maintenance Inspector. Why are maintenance personnel excluded from bidding privileges in this advertisement?

Answer: You are not excluded from bidding on these positions, but you must have the same flight hours in the same types and amounts needed for General Aviation Operations Inspectors in comparable grade levels. Reasons: (1) These specialists will be required to give courtesy flight checks when requested; and, (2) records show that the majority of general aviation accidents are caused by factors other than equipment failure.

Question: I am a clerk-stenographer at branch level in an area office. Jobs like mine in the same branches of other area offices are classified as secretaries. How can positions with similar duties be classified differently in different area offices?

Answer: Many of the duties in the job descriptions you sent with your letter are indeed quite similar. The differences that do exist, because of variations in work assignments by supervisors, become important in classifying the jobs when they are considered in light of classification standards and the specific work environment of the positions. This is particularly true in your kind of work, because there are some very fine distinctions between clerk-stenographer and secretarial jobs. Check with your boss or your personnel office for an explanation of why your position is classified as it is.

Question: I interpret Handbook 3800.1, CH 1, as saying that the body of a dependent who dies in Alaska or Hawaii will be shipped by the government to the employee's homestate, but this is not so with the body of the employee himself. Is this correct?

Answer: Yes. This difference in treatment results from the entry of Alaska and Hawaii into the Union. When Alaska and Hawaii gained statehood, they were automatically excluded from the laws providing for special benefits for employees stationed in a territory or possession of the United States. The agency is seeking legislation to relieve this situation.

Question: Why doesn't the FAA recognize the holding of a radio-telephone 1st Class License as indicative of a man's technical knowledge. What is the problem?

Answer: The FCC license is granted only to persons who prove through FCC tests that they possess at least a certain basic level of knowledge in electronics usually in-

volving electro-magnetic transmissions. The FAA must, however, make every effort to train and continuously improve the individual's knowledge and skill to the point where he can be certified as an expert on specific electronic systems. The lives and safety of many persons may depend upon your ability to cope with electronic problems in day-to-day activities as well as under emergency conditions, and the agency reserves to itself the right to determine that you are fully capable to perform all the aspects of certifying your facility. The FCC examinations were considered along with many other similar examinations for appropriateness to the Certification Program. Although your FCC license cannot be credited towards FAA certification authority, you should have no difficulty in keeping your license current in your present position with FAA. Any endorsement that you hold on the basic FCC license can be renewed over your supervisor's signature if the technical field covered is applicable to your present work.

Gas Plagues Wake

(Continued from page 1)

It was Chloropicrin—known during World War II as "vomiting gas."

Earlier this year, the Coast Guard station located near the suspected source of the gas was forced to evacuate its personnel when a heavier-than-usual concentration of the gas drifted over the area.

Fortunately, islanders thus far affected by the gas have recovered without any after-effects. Dr. Casimer Jasinsky, PC's Regional Flight Surgeon, reports that his patients recovered completely after two or three days' treatment.

Area Manager LaCaille says that alternate water recreation sites have been designated, and action is being taken to clear the affected area by use of skimming operations and decontaminants, and by bulldozing a channel across the foot of Flipper Point to allow the water current to carry the offending material from the lagoon out to the open sea.



Menacing Gas Leak

A mysterious leaking gas plaguing FAA employees on Peal Island (above) in the Wake atoll has finally been identified as Chloropicrin, known as "vomiting" gas in World War II. The channel near Flipper Point is being deepened so the ocean current can carry off the irritant.

Agency to Automate P&T Records for Efficiency

WASHINGTON—FAA is taking another major step to improve the flow of management information by automating its personnel records system, report Joseph H. Tippets, Associate Administrator for Personnel and Training and Clarke Harper, Associate Administrator for Administration.

The new Automated Manpower and Personnel Information System will improve the processing of personnel actions. More importantly, it will assure that agency decision makers will have accurate information on the FAA work force to consider alternative courses of action.

The new system will be developed under the combined direction of the Manpower and Planning Staff and the Office of Management Systems, with technical assistance from Computer Command and Control Company, specialists in computer sciences and retrieval.

Tippets noted that while our existing information systems have served us well, they are antiquated, slow and possess limited data capacity.

"We must bear in mind that the impact on people must be an essential consideration in every major policy decision. We need more complete information about the work force on a more timely basis—information on the knowledge, skills, abilities, experience and interests of each FAA employee," he stated. "The new Manpower and Personnel Information System will be capable of providing the essential data when we need it."

"It will also help eliminate the costly requirement for supplemental manual reports that plague us all. For example, top management needs weekly progress reports regarding success in filling new positions in critical program areas such as air traffic control, systems maintenance and flight inspection. The best the existing system can do, however, is to produce these data from 11 to 33 working days late. This is obviously inadequate."

Tippets emphasized two principles which will guide the design team. "First, we will not reduce employees to a series of numbers in the computer's data bank. There will be no button pushing to make decisions concerning an employee's career interests or development. We

will always seek to involve employees in all decisions affecting their careers.

"Secondly, the privileged nature of the personnel records system will be respected and safeguarded to prevent unauthorized use or disclosure. We contemplate that, as a check on the accuracy of the data, each employee will receive a print-out of his record," he concluded.

This new system is one of the most advanced under development in the Federal Government and has the approval of the Executive Committee. The design phase began June 3, when representatives of the Computer Command and Control Company reported to assist in the developmental work.

During the first half of the 10-month contract, the design team will evaluate various designs. They will then submit, for management's consideration, alternative system concepts along with hardware, software and cost requirements.

The alternative systems will be evaluated and a report prepared recommending the best system for FAA. Following the agency's selection of the system, the detailed design specifications and descriptions will be completed, along with an implementation plan and schedule. This will permit the programming and testing phase to begin with minimum interruption.

'Horizons' Chief Is Reassigned

WASHINGTON—After this issue, a change in staff of "FAA Horizons" will see its Editor depart after two years in the Office of Information Services.

W. Bruce Chambers, Chief, Employee Information Division, takes another step in his Federal career by joining the Western Region in its Program Planning and Evaluation Office.

Clifford Cernik, Assistant Public Affairs Officer in that region, will transfer to take Chambers' position in Washington about the first week in August. In the interim, Thom Hook, "FAA Horizons" Associate Editor, will be Acting Chief, Employee Information Division.

	Total	AT Positions	AF Positions	FS Positions	Other Professional & Misc. Positions	Clerical Wage Board, Professional & Misc. Positions
April, May, June, 1967	2,215	345	170	29	150	1,521
July, Aug., Sept., 1967	1,794	375	138	42	122	1,117
Oct., Nov., Dec., 1967	1,437	498	103	30	51	755
Jan., Feb., Mar., 1968	960	457	85	27	42	349
April, 1968	634	355	40	9	22	208
May, 1968	643	345	63	8	20	207
TOTAL	7,683	2,375	599	145	407	4,157
LOSSES	5,379	613	326	80	401	3,959
NET GAIN	2,304	1,762	273	65	6	198
As of March 31, Grand Total on Board	44,709	18,132	8,712	2,403	3,672	11,790

FAA Recruitment

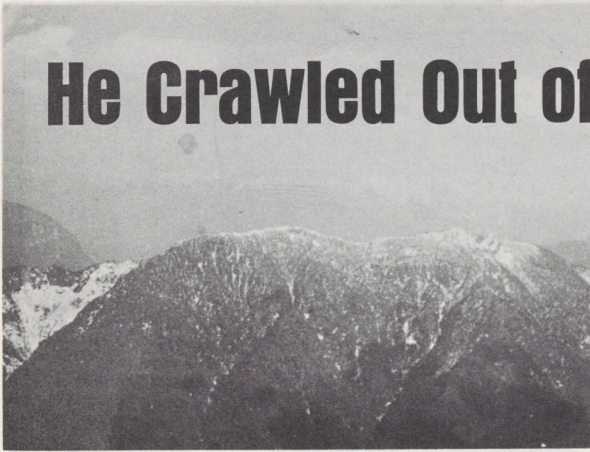
This chart reflects recruitment by selected occupational categories for the period April 1, 1967 through May 31, 1968. See the story on page 1.



Seeking Job Opportunities

Secretary of Transportation Alan S. Boyd discusses the progress of DOT's Summer Youth Opportunity Campaign with Ad Hoc Committee members. The Secretary stressed the need to urge contractors, states and sponsors to support the summer campaign. Pictured from left to right: (Seated) William Gavan, FAA (substituting for Donald Higgins); John Yoshino, Executive Secretary; J. Oliva Huot, Chairman; Secretary Boyd; Don Marion, FHWA; (Standing) Michael O'Rourke, FRA; Roy Barton, USCG; Ken Chandler, OST; Robert Coates, OST; William Hodson, OST; James Gardner, OST.

He Crawled Out of 'the Hump'



By Thom Hook

ONLY A HALF YEAR before the end of WWII, the twin-engine C-46 Curtiss Commando droned comfortably at 20,500 feet as it passed over the Chinese town of Yunnanyi. In the left seat sat swarthy 33-year-old Robert Reynolds.

He felt at home in the C-46's greenhouse, as the crew of three was returning from Kunming, China, to their base at Sookerating, India. As they cruised along 500 feet above an overcast, flying "the Hump" in golden sunshine above the soup was like a milk run. None of the usual ice, thunderstorms or teeth-rattling turbulence.

As far as the eye could see, there was only blue cover overhead and a little transparent fluffy white cloud ahead. Reynolds now had forgotten the delay experienced after last night's flight, when the ground crew had spent four hours fixing up the big bird's innards. Her two R-2800 engines now were humming along at 180 m.p.h. In the right seat, as co-pilot, was A. B. Robbins, and the crew was rounded out by a Sergeant Hicks. "Hump" crews were assigned at will, and this was the first mission the trio had flown together.

A Day to Remember

On this day that all three would remember forever—February 27, 1945—Reynolds had been flying the "Burma Road of the Air" for nearly 300 hours, on 37 missions. In five months' time, he was becoming a veteran of the Himalayan high road. A few more missions and he would have his Distinguished Flying Cross.

The fluffy-white cloud loomed ahead. As if the cloud were some harbinger of doom, when it penetrated it, the left engine suddenly began to surge wildly. What had been a comforting hum, in seconds had become a rough, frightening racket. The left propeller had flattened out and the engine was running away.

Four eyes searched the instrument panel. The tachometer for the left engine fluctuated wildly—and then zoomed beyond the maximum! Working feverishly, the pilots brought it momentarily under control and breathed a sigh of relief. Then it failed completely, the propeller windmilling uselessly.

Remembering they had just passed Yunnanyi minutes before, where there were breaks in the overcast, Reynolds decided to turn back. Maybe they could make the airstrip there, he told Robbins. Unable to maintain altitude with the remaining engine, the C-46 plunged into the overcast. Now, to add to their troubles, they were on instruments.

Mount Tali Somewhere Below

Reynolds kept an uneasy eye on the altimeter, knowing they were now in the vicinity of Mount Tali, with its elevation of 14,700 feet.

Suddenly, the right engine quit! Thinking the failure came from carburetor icing, they tried everything: injecting alcohol into the carburetor throat, leaning the mixture, switching boosters and fuel tanks—but to no avail. As the altimeter approached 15,000 feet, it was "Abandon Ship!" Hicks went first. Then Robbins. Reynolds lost a precious minute due to unexpected difficulty buckling the leg straps of his parachute. Then he bailed out.

The chute opened, but in the thin air of that altitude, he fell fast and hard. At about 14,000 feet, the upward slopes of Tali met the landing force of Reynolds' plummeting form. He was knocked unconscious for two-and-a-half hours. When he awoke, his watch indicated 12:30 a.m.

He struggled to get up, but couldn't. His right leg was broken, almost severed at the ankle. His right foot dangled loosely from his leg.

His left leg wouldn't support him either. He thought the ankle was sprained (and learned later it, too, was broken).

Huge patches of snow surrounded Reynolds on the rocky slope above Tali's timberline. The air was wet and penetrating. A gust of icy wind suddenly yanked him by his shoulder harness. The still-attached parachute was dragging him over the razor-sharp terrain. Aware then that his face was full of cuts, he realized the chute had been doing this spasmodically all the time he was unconscious.

His Air Force survival training took hold. "Don't Panic!" was the first rule. Taking

Illustration courtesy of "Argosy" magazine ▶

The first in a series of exciting true adventures of present-day FAAers...



inventory, he discovered he had lost his .45 pistol in the jump, but his jungle kit was intact, including chocolate rations, compass, signalling mirror, water purifier, nationality flags and morphine syrettes. With his machete, Reynolds cut two branches from a scrubby mountain bush and splinted his worst leg.

Crawling along on his backside, feet first, he began inching his way down. He wanted to stay above the timberline...

"Stay high. The search planes are bound to come and spot me up here," he thought.

By nightfall, he had left the snow line. He rolled himself into his chute to sleep.

Whether awake or asleep, he thought constantly, "I've got to get off this mountain while I've got the strength!"

Another Cold, Fitful Night

He awoke early and continued dragging his big frame down the slope. There was no break in the overcast above. By noon he decided to go down into the trees and warmer air and to the stream he knew such mountain valleys usually have. As the jungle got thicker, he laboriously cut a path with his machete. In a few hours he emerged on an animal trail. He followed it and found the stream whose water could soothe his parched throat.

That night it rained all night. Reynolds, wet and depressed, slept with his back against a rock slab by the stream. In the morning he saw that across the stream where he had bedded, there was a wider trail, going uphill. He crossed the stream and started going uphill on the trail, putting his useless feet in front of him. Soon he couldn't go farther, and passed out from pain and fatigue. Hours later he was awakened by two Chinese boys—ages about 17 and 15—chattering like parrots approximately twenty feet away.

He had heard that some Chinese would kill a man for his shoes or a watch. While most were friendly, some were not. He made the "thumbs up" sign and showed them the Chinese and American flags from his jungle kit. Whatever he had in his pockets he gave them, indicating by signs how gravely he needed medical at-

tention. Finally, hoisted to the back of one of the boys, Reynolds was half-carried, half-dragged on up the trail. Some three hours later an older Chinese man happened along and helped them. They stopped about every 250 yards, so Reynolds could have a break from the pain.

Finally, they reached a road teeming with Chinese road workers. It was the Burma Road! By Chinese grapevine, word was passed to a U.S. construction engineers' camp that help was needed urgently. In a few hours, a jeep came, and Reynolds began the long trip back to safety. As he left, to express his gratitude, he embraced each of the three Chinese who had carried him. They ceremoniously backed off and bowed, to wish him well.

From Field to Base Hospitals

From the construction camp, where a new splint was put on his shattered leg, Reynolds was taken to the U.S. air base at Yunnanyi, where a Captain Lynn Jones flew him to a hospital in Kunming. At Kunming, Reynolds was reunited with his co-pilot, who was safe, but who also had broken a leg. Reynolds also learned Sgt. Hicks had returned safely, and unhurt. From Kunming, Reynolds went to Calcutta and then to a general hospital in El Paso. In two years, his foot was rebuilt.

Reynolds now wears a special shoe and his right foot is fused so it won't bend. Although he has permanent disability, he has been able to overcome these handicaps.

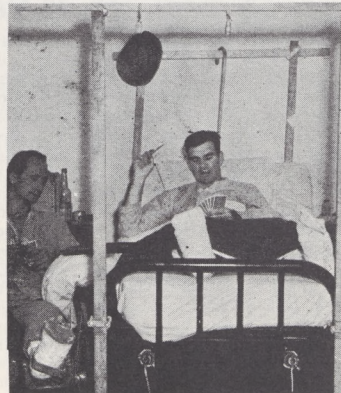
And it's a small world, in truth. The same Lynn Jones who commandeered a B-24 to fly Reynolds out of Yunnanyi happened to enter FAA with Reynolds in 1947. Several decades later, both coincidentally happen to be on the 10th floor at Headquarters—Reynolds as Assistant Administrator for General Aviation Affairs, and Jones as Chief, Asian Operations Branch, Office of International Aviation Affairs.

When the two service buddies discuss the event, after many years, Reynolds admits to an ongoing desire to see the three Chinese who took him off Tali.

He'd like to tell them once more, "Ding hao—Everything's okay!"



Faded snapshots from Bob Reynolds' World War II scrapbook show C-46s (above) parked at Yunnanyi Air Base, China, after unloading fuel drums and other cargo. At right, Reynolds plays cards while in traction at the start of his two years of hospitalization after jumping into the wild Himalayan range by parachute.



Robert V. Reynolds, Assistant Administrator for General Aviation Affairs, has a quarter century of Federal service. He recently received an award for "outstanding leadership" at the International Exposition of Flight in Las Vegas.