Air Safety Controlled by FAA, Rigid Traffic Rules, and Equipment

Editor's note: Each time there's an air disaster, the public wants to know again what is being done to make airliner travel safer. Here is a report on one phase of the situation.

By AL RUETTNER
United Press International

Atlanta — (UPI) — Anyone looking toward the main jet runway of the Atlanta Municipal airport might have wondered what kind of foolishness was being permitted.

A two-engine DC-3 came out of low clouds to what seemed to be a normal landing. But at 200 feet, the pilot gunned the engines, flashed along the entire 8,000-foot jet runway No. 9 and roared back into the sky.

In the cockpit, pilot Harold Little was not indulging in tom foolery.

"FAA-2, you are cleared for a low level approach," said the voice from the control tower.

The plane circled and started down again.

"Give me the high intensity lights, please," Little said into his speaker.

Suddenly, a huge cross-shaped cluster of lights with a running series of strobe bulbs in the center flashed on at the end of the runway.

Safety Check

Little, a highly skilled Federal Aviation Agency inspector, was checking if the airport's instruments and safety equipment were functioning to the nth degree. A similar check not long ago showed that landing instruments were giving incorrect information. The runway was closed to aircraft arriving under severe weather conditions until the trouble was corrected.

Little is one of thousands of experts whose job it is to make flying as safe as humanly possible.

When you're in an airliner in weather so thick you can't see the wing tips, a team of Federal Aviation Agency (FAA) controllers has your aircraft plainly in sight on about three radar screens. Your pilot is in contact with ground stations on up to 10 radio frequencies.

These controllers are the traffic cops for skyways that have become increasingly crowded with aircraft.

On a normal day, an average of 70,000 persons are in the air in one of the peak hours of travel. An estimated 53,000 aircraft are in flight in the nation at any given time of day. To keep this traffic sorted out requires not only rigid traffic rules but some intricate equipment.

"I remember when I went to work at the airport some years ago, we controlled incoming and departing airplanes by running out on the runway with a red flag," Richard Cosgrove, chief airport tower controller here, said.

Part Of Network

Today Cosgrove's tower is part of an FAA air traffic control network that covers the southeast and interlocks with other FAA centers.

One of those regional centers is near Atlanta and is somewhat typical of the manner in which the air traffic cops work.

It is a bomb-proof structure with self - contained features for survival of personnel in event of nuclear war.

In a room the size of a small theater — air conditioned and sound - proofed — a group of highly trained and dedicated men under the supervision of control center chief J. B. Smith work at telephones and ever radar screens. They have under their control every aircraft in the skies in the southeastern United States — each one designated by figures and symbols written on small wooden blocks.

From the moment your plane takes off, it is visible as a "blip" on the screen of a radar set before which an FAA controller is sitting. Your pilot has been given precise flight instructions by the FAA.

As your airliner roars off, your flight is "handed off" by the local control tower to the FAA air traffic control center. There are 17 of these in the country.

These regional control centers maintain radar surveillance of aircraft within a radius of 200 miles. One team of controllers is keeping tabs on all aircraft flying at altitudes of 24,000 feet and above. Others are watching planes at lower altitudes.

Airplanes Stacked

When your plane gets within about 30 miles of the Atlanta terminal, you are "handed off" to the Atlanta control tower. If it's between 11 a.m. and noon or from 5 to 6 p.m., Atlanta will be the busiest airport anywhere and you will have some sky waiting before you.

Your pilot will be given a "hold" position in what's called a "stack". While in the stack, your pilot will circle at a prescribed altitude (1,000 feet of altitude between planes) around a radio beacon. As one stack is filled, another is started. Sometimes there are as many as eight or 10 of these stacks around the Atlanta terminal. Planes are peeled off the bottom as the busy tower brings ships down.

Suppose the weather is bad. That no - wing - tip visibility might bother you, but it does not faze your pilot. As one put it, "when we near a busy airport, we pray for minimum ceiling and visibility because that clears out about half the air traffic."

More than six out of 10 air accidents occur at or within one-half mile of airports, so the safety precautions are intensified in the terminal areas.

Your plane is brought down through the clouds by instruments that double and triple check against each other. But in the final analysis, it is the captain of your craft who decides whether or should land.

'Rabbit' Key Lights

At each end of instrument runways at airports like Atlanta, "the rabbit" runs in bad weather. This is the key part of the Instrument Landing System (ILS). These are the lights you can see on declining altitude stands at the ends of some runways.

When this system is operating, strobe lights with an intensity of three million candlepower for each bulb flash in series every two seconds. A pilot landing in foul weather sees the lights flashing with the appearance of bunny-hopping toward the center of the runway.

Pilots quickly dubbed the lights "the rabbit" and they swear by them as among the finest inventions in aviation.

If these lights can't be seen by the time the pilot is 200 feet from the ground, he is required to pass up a landing, resume altitude and get further instructions from the tower.

The air enthusiasts can bolster with statistics their contention it is safer to fly than to go by some other means. In 1961, 31 persons were killed in plane crashes for every 100 million passenger miles. Translated, that means you could figure on circling the earth 10,400 times in a good airplane without cracking up.

For the same mileage, the automobile fatality record was 2.2 persons, trains .08 and buses .11.

Narrow Margin

But the pilots are constantly after the airlines, the airports and the FAA to narrow the safety margin.

"After all, we're the boys up front and I've never heard about one of these things crashing tail first," said Vic Hughes, chairman of the Air Line Pilots Association fire safety committee here.

With all the safety devices, why do we still have accidents, you ask the aviation experts.

"It's all a problem of motion," said Cosgrove. "There's the explanation that the element of danger was introduced to air travel when Orville Wright turned to his brother, Wilbur, and said 'let's build another one'. I guess that about sums it up."

Heart Structure Suited to Space Should Be Large

Madison, Wis. — (UPI — Men with "a lot of heart" may be better suited for space travel than others, a University of Wisconsin Medical school pathologist indicates.

A man with a large heart and more numerous and bigger blood vessels and cells can better adjust to the low oxygen pressure found at high altitudes, Dr. Enrique Valdivia said.

"Should the oxygen pressure suddenly drop in the next astronaut's space ship," he said, "he'd have a better chance of surviving his cardiovascular system were so constructed."

Otherwise an astronaut might become headachy, nauseous and out of breath. His toes and fingers would begin to tingle. He would probably even become too weak to move if the pressure dropped to half the 760mm. of mercury found at sea level.

Researchers now say have solved the puzzle of how the mountain Indians of Peru and Chile manage to work so hard and avoid disease in the thin mountain air.

Barrel Chested

Studies indicate these Indians have unusually large hearts and huge "barrel chests" not found in coastal dwellers.

The same factors that help the Indians adjust to the high altitude may also help future astronauts in space ships.

To study how these adaptations develop, Valdivia and his associates have been studying guinea pigs who grow up in a low pressure environment.

They found that the animals who are native to the mountains of Peru have many more capillaries in their muscles than lowland species. Capillaries are the tiny blood vessels which help carry oxygen to the body tissues. Thus normal activity is permitted.

The next step was to find out how non-mountain animals adapt to high altitudes.

Special Chamber

The research team set up a special pressure chamber in their UW laboratory which reproduced the high altitude environment of the Peruvian mountains. They discovered the right ventricle of the heart pumps blood to the lungs.

Valdivia concluded that high blood pressure in the lung's vessels means extra work for the heart's pump. The strained muscles of the right ventricle must expand to do their job properly.

Later studies showed that as the animals "climbed the mountain" of the pressure chamber, their capillaries began to increase.

Cell Changes Found

Changes in the animals' muscle cells were also found. These cells contained a greater number of mitochondria than those normal animals who were left "at home." Mitochondria are the cell powerhouses which convert body fuel to chemical energy. Thus, high altitude animals have more energy available.

The doctor's latest research indicates that the blood itself responds to low pressure. Red blood cells, which carry oxygen, increase in number and size, apparently to help them operate more efficiently.

All these factors — high blood pressure, strain on the right side of the heart, oversized blood cells — offer clues to further heart research, Valdivia said. He is now seeking the relationship of these factors to heart failure.

His present studies are supported by the UW Research committee, Wisconsin Heart association and National Institutes of Health.

Exclusive Hotel Caters To Research Volunteers

By ROBERT MUSEL
United Press International

London — (UPI) — The management of Britain's most exclusive hotel is delighted to be able to report that it can now guarantee most of its guests a streaming cold.

And this little announcement, extracted from a scientific paper, should be good news all around the world for it means that British scientists are at last in sight of a breakthrough in the cure of the common cold.

This breakthrough could come in 1963 - although research workers at the Harvard hospital in Salisbury have long since learned not to underestimate the baffling virus which is apparently responsible for our watering eyes and plugged noses.

Happily sneezing away today in isolation huts on the grounds of the hospital are the volunteers who in relays since 1948 have acted as human guinea pigs in one of the most intensive attacks ever launched against any malady of man.

Good Accommodations

More than 7,500 of them have offered their respiratory tracts to science in return for 10 days of good bedside accommodation at Salisbury with three good square meals served in the rooms and three shillings a day (42 cents) pocket money.

The intrepid British came forward in their thousands 16 years ago when the Medical Research Council and the Ministry of Health, in a joint appeal, stated that science could learn nothing further about colds from the guinea pig or the chimpanzee and needed human subjects.

Many of the guests, until this past year or two, went home well-rested, without a single symptom of cold, because of the cussedness of the offending virus which refused to act in any predictable manner.

One old wives' tale after another was shattered. Men and women sat in drafts, were drenched with water and allowed to dry off in the chill air, chummed around with people who had colds and even had fluid from cold sufferers transferred to their own noses.

Few Got Colds

Far fewer of them got colds than the apprehensive scientists hoped would be the case. Obviously the old wives-and the rest of humanity - got their colds from something else. And only in the past year or so have the scientists at Salisbury begun to find out from what.

In a summary of the work of Harvard hospital, its director, Dr. M. L. Bynoe, reported that the common cold research unit had discovered a new group of viruses known as "rhinoviruses" and that volunteers infected with these definitely caught colds.

In science, learning how a thing happens is only one step away from learning how to keep it from happening. So Dr. Bynoe's paper was greeted by the medical periodical "The Practitioner" with the words: "It now looks as if a breakthrough were in sight."

"How soon this will occur is unpredictable," The Practitioner said editorially, "but the mere fact that it is even in sight is a notable tribute to the patience and ingenuity of the common cold research unit."

Dr. Bynoe gave this outline of the current knowledge of science about man's most widespread ailment:

Colds are spread by personal contact and children are the best spreaders of the infection.

Inhalation One Cause

Transmission seems to occur by inhalation of infected droplets but this is not the whole story because many volunteers exposed to cold sufferers do not catch it. In these cases the virus had to be dropped up their noses before they succumbed.

Colds die out in closed communities, such as Spitzbergen and the island of Tristan da Cunha (recently evacuated because of an erupting volcano) but they recur when the community is visited by a ship even though those on board may not have colds.

This suggests the possibility that there are "cold carriers," people who have the virus without any cold symptoms.

Why we get more colds in winter is still uncertain. Low temperature itself cannot be the cause since polar explorers living in intense cold do not suffer from colds. Dampness and chills apparently aren't guilty either as the human volunteers proved.

Humidity Important

Humidity may be important - a relationship has been noticed between the onset of autumn colds and the lowering of relative humidity indoors.

It may be possible to prepare a vaccine giving protection against one or more rhinoviruses and this is being studied but the trouble is there are so many different types of virus.

In this connection research is continuing into "interferon," a substance discovered in cells by one of the unit's executives, Dr. Alick Isaacs, which appears to inhibit the growth of viruses.

It will shortly be tested in volunteers.

In its continuing research Harvard hospital is tempting volunteers with the sort of brochure a hotel puts out extolling the opportunity to rest, (when not sneezing, of course), or to indulge in indoor and outdoor games "not involving more than two persons."

Isolated In Couples

This is because the volunteers are now isolated in twos after solitary accommodation proved too lonely for the first arrivals. Married couples are encouraged and, the brochure says, "almost all have enjoyed their stay and have thought it worth catching nothing more than a common cold."

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Hugging Collar Good Sign of Fit in Furs

Chicago — (UPI) — The first thing to do when purchasing a fur coat is to look at the back of the neck, says A. L. Meltzer, founder of the Evans Fur company, a firm that boasts more women buy furs from it than anywhere else.

Meltzer said the collar should hug the neckline so that the coat rests on the shoulders where it belongs. Be sure the coat isn't cut too low, pulling the coat away from the neckline.

Dried Milk and Eggs Show No Flavor Loss

Chicago — (UPI) — The GI, who turned up his nose at dried milk and eggs during World War II wouldn't recognize those products now.

The chemical industry has developed a jet spray dryer that not only dries eggs and milk, but other foodstuffs, with little or no loss of taste and quality, according to a paper read at a recent meeting of the American Institute of Chemical Engineers here.