

**JANUARY 1992**

*General aviation mishap trends (USAF School of Aerospace Medicine, Brooks AFB, TX):* “General Aviation pilots have been involved in a steadily decreasing number of accidents over the past 20 years... Pilot age and certificate distributions from 1968 to 1987 were assembled from annual Federal Aviation Administration (FAA) surveys. Information about pilots involved in accidents was collected from annual National Transportation Safety Board (NTSB) reports... From 1968–87, the mean pilot age increased from 35 to 40 years and the number of pilots over the age of 60 increased five-fold. The number of pilots with Air Transport Pilot (ATP) certification tripled and instrument certification increased 80%. Accidents where an Instrument Flight Rules (IFR) flight plan was filed increased from 3.6% to 6.6% without a corresponding increase in the number of accidents in weather at or below instrument meteorologic conditions (IMC). The accident experience from 1968 to 1973 predicted 116,000 accidents from 1968 to 1987. The actual number of accidents was 40% less than predicted. The average pilot age has increased both due to more pilots over the age of 50 and less young student pilots. Despite an increase in the number of pilots holding an instrument rating and filing instrument flight plans, there was not an increase in IMC weather-related accidents. Comparison of adjusted accident rates to the actual accident experience shows a marked reduction in accident rates for each pilot age group during the 20-year period. This represents a real advancement in aviation safety where improved pilot performance resulted in fewer accidents.”<sup>1</sup>

**JANUARY 1967**

*Radiation exposure on Gemini missions (U.S. Naval Aerospace Medical Institute, Pensacola, FL):* “On Gemini type missions the bulk of the radiation exposure of the astronauts is due to trapped protons picked up in the South Atlantic Anomaly. Although the exposure remained around the 50-millirad level during the four-day mission (Gemini IV) and around the 100-millirad level during the seven-day mission (Gemini V), a detailed analysis of the proton energy spectrum seems of special interest. Track and grain count evaluation of nuclear emulsion carried by the astronauts within their space suits and helmets shows that this spectrum is a continuum from zero to about 400 Mev kinetic energy with a broad maximum. Since a large part of the flux is of low penetrating power, the radiation level within the capsule sensitively depends on local shield geometry showing dose rate variations of 20 per cent at opposite corners of the same film sheet...”

“From a radiobiological viewpoint and for the assessment of the exposure hazard, main importance rests on the obvious implication that the strong dependence on the local shielding equivalent must show also in the depth dose distribution in the astronaut’s body in the sense that dose can be expected to drop steeply with increasing depth. This implication once again brings into sharp focus the predicament that for total body exposures

with such highly structured radiation fields, few, if any, experimental data are available that would allow an accurate appraisal of the radiation injury.”<sup>3</sup>

**JANUARY 1942**

*Air transport of patients (Mayo Clinic, Rochester, MN and Office of the Air Surgeon, U.S. Army Air Forces, Washington, DC):* “The transportation of ambulatory patients on a commercial airline is feasible and to be recommended. The advantages of transport of wounded by airplane are as follows: unusual speed and short duration of evacuation from forward zone, comfort in transit instead of a rough and long ride in a motor ambulance, safety, conservation of medical personnel and field equipment, constant observation and care during flight by trained personnel, more adequate treatment for the badly injured and seriously ill by shortening materially the period of time needed to bring them to their ultimate destination where definitive treatment can be given and thereby improvement of the chances of recovery of the seriously ill or wounded patients especially if a major surgical procedure is necessary. Congestion on the land lines of communication is decreased. Morale of the wounded soldier would be higher than that of the average if he knew such service was available.

“The disadvantages of airplane ambulances are the necessity for reasonably good landing fields and servicing facilities, the loss of usefulness during adverse weather, the need for trained pilots and the danger of attack by enemy aircraft. In many instances the airplane ambulances could be flown and serviced from regular army air fields. Very bad weather would force cancellation of flights. Civilian pilots with adequate training could relieve the army pilots. Stewardesses from the commercial airlines could be trained quickly in the care of the wounded in flight. All trips would be behind the front lines and distinctive markings could be employed on the wings and fuselage of the planes. Night flights could also be made. Further disadvantages are practically all of an economic nature, initial cost, and present lack of transports for other purposes.”<sup>2</sup>

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