

AERONAUTICS

New Plane Features

Light airplanes are now being designed with more features intended to lower fatality rates. Unless cabin collapses, pilot should now survive a crash.

➤ **LIGHT AIRPLANES** such as those used for crop-dusting are being designed with more "crashworthy" features, and the trend is toward lower fatality rates.

Karl H. Bergey, engineer with Piper Aircraft Corporation, Lock Haven, Pa., points out that during 880,000 hours of agricultural flying in 1959, there was one accident for each 3,000 hours, and one death for each 16,000 hours.

Newer planes, however, fared better than the overall averages. Planes designed within the preceding decade had one accident for each 4,000 hours of flying, and one death for each 90,000 hours.

Unless the cabin of the aircraft collapses or disintegrates, the pilot should survive a crash, Mr. Bergey said.

He recommends short, lightweight power plants, placed well forward from the cabin, and seats for pilots and passengers "as far behind the wing as possible."

The wings should be low on the fuselage. Fuel tanks should be located in or on the wings, but as far out as possible to lessen fire dangers, as in the Cessna 310 and the Piper Apache. Locks should be designed to "make the door an integral part of the cabin structure when closed."

Nearly 80% of the deaths in light aircraft accidents are from head injuries, Mr. Bergey stressed. Chances of head injuries are lowered by wearing safety belts, hard hats and shoulder harness.

Safety belts have been accepted by the flying public. Shoulder harness has been greeted with "monumental indifference," and should be publicized.

"To make this effective, some modification of the polite fiction that airplanes do not crash would be required," Mr. Bergey said in the SAE (Society of Automotive Engineers) Journal, 69:54, 1961.

• Science News Letter, 80:100 August 12, 1961

MEDICINE

Virus Causes Lung Cancer

➤ **LUNG CANCER** in animals can be spread through the respiratory tract as easily as the common cold can be transmitted from one individual to another.

Although the virus-caused animal cancer, polyoma, is usually found in mice, Dr. Theodore Burnstein of the University of Miami Medical School and Miami's Variety Children's Research Foundation produced this type of tumor in the lungs of hamsters merely by having the animals inhale polyoma virus.

Of 38 hamsters receiving unfiltered polyoma virus intranasally, nine developed visceral tumors, 14 developed lung and visceral tumors, and 15, lung tumors alone. The neoplastic changes were induced in an average of 35 days. When filtered virus was inhaled, two of 19 hamsters developed lung tumors in 85 to 92 days respectively.

Animals with lung involvement were thinner than controls and respiration rate count went up before death, but there was no coughing.

Almost no lung tumors appeared in animals receiving polyoma virus via other routes, in the brain, body cavity or under the skin.

Although considerable work on the production of lung tumors in mice by chemical carcinogens has been reported, Dr. Burnstein said, only one research group reports virus-induced lung tumors in hamsters, and these lung tumors followed subcutaneous — not intranasal — injection of polyoma virus.

"The fact that one virus cancer can be produced by the intranasal route suggests that others may enter this way," Dr. Burnstein said. He pointed out that viruses thus should be added to the list of other agents already known to be causes of lung cancer.

Possible relationship of this animal experimentation to human cancer awaits further exploration.

• Science News Letter, 80:100 August 12, 1961

VITAL STATISTICS

Illegitimacy Rate High for Teen-Agers

➤ **THE ILLEGITIMACY** ratio is highest for teen-agers, particularly under 15 years old, the U. S. Public Health Service reported.

Detailed figures now released for 1959 show the number of illegitimate births at an estimated 221,000 out of a total number of 4,295,000 live births. Young mothers under 15 were estimated to have 679 illegitimate births per 1,000 live births. At ages 15-17 years, the ratio was 242 per 1,000 live births, and at ages 18 and 19, 106 per 1,000 live births.

Only 34 states and the District of Columbia reported illegitimate live births, so the total figure was based on estimates for nonreporting states.

The first four months of 1961 showed a sizable increase in the number of U. S. births over the same period in 1960, perhaps due to an increase in the number of

marriages, which rose by about two percent between 1959 and 1960.

Of the 1959 births, there were 40,000 more reported than in 1958. Of the 4,295,000 live births in 1959, 51% were of a first or second child, 19% of a third child and 29% of a fourth or later child. The percentage of fourth or subsequent children in 1959 was significantly higher than in 1958.

Half the women having their first child in 1959 were under 21.6 years old, slightly lower than the 21.8 figure for 1958. Women aged 20-24 had the highest birth rate, with about one out of four giving birth to a baby in 1959.

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Beer may cause a profound reduction of coagulation in the blood of healthy persons.

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