AERONAUTICS

Aviation Improvement

Radar, gas turbines, jet propulsion and the helicopter will probably be most effective in the advances of the near future.

➤ RADAR, gas turbines, so-called jet propulsion, and the helicopter will probably be most effective in the improvement of aviation in the near future, Dr. C. C. Furnas, director of research for Curtiss-Wright's airplane division, told a meeting of the Junior Chemical Engineers.

"The coming era of air travel is almost certainly destined to make major changes in the pattern of American living, and, in the not distant future, in the way of life all over the world," he prophesied.

"One of the fair-haired boys of this war has been radar, which is an abbreviation for 'radio directioning and ranging'," he stated. "Many of its applications and methods of operation are still secret, but in general it may be said that radar uses short radio waves as a substitute for light rays. This makes it possible, with proper instrumentation, to see and to make measurements no matter what may be the conditions of weather or darkness."

Dr. Furnas predicted that radar is going to become the basis for automatically keeping a plane a safe distance above obstacles, for exact navigation at all times, for collision prevention and for blind approach and blind landing systems which will be used in bad weather.

"The principal enemy of aircraft schedules is weather," Dr. Furnas stated, "Mark Twain notwithstanding, you can't do much about the weather. But soon it will be possible to complete scheduled commercial flights no matter what the atmospheric conditions may be."

He pointed out that radar, plus the use of exhaust heat to prevent the formation of ice on the wings and fuselage, will eventually make it possible to maintain a reliability of schedule at least as good as that of the railroads, with almost equal safety.

"If the aircraft manufacturers seriously take hold of the developments which the long-haired physicists have made during the last few years, we can expect to see a real revolution in air travel to begin within the next few years," Dr. Furnas predicted.

The gas turbine may render the conventional reciprocating engine obsolete for aircraft use in sizes above 1,000 horsepower. Recent advances in metallurgy and in certain features of mechanical engineering have now brought this device well into the forefront of the hopeful developments for the future. It will not only be lighter and probably more efficient but will be very much smoother in operation than the engines now in use. This will be an important factor contributing to passenger comfort, Dr. Furnas declared.

If the public demands planes traveling from coast to coast in five or six hours, we may expect jet-propelled aircraft cruising through the air at high altitudes at a speed between 500 and 600 miles an hour, with not more than one or two stops, he remarked.

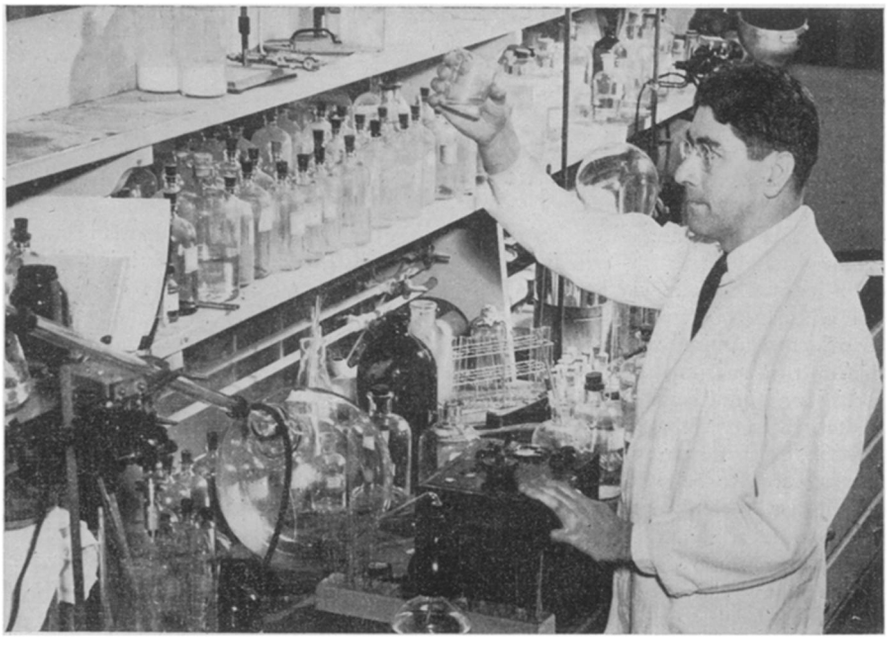
While the helicopter is still a long way from perfection, difficult to fly and not particularly reliable, Dr. Furnas predicts that when some of its problems are solved the helicopter can replace surf boats of the Coast Guard. It can also be used in crop-dusting for the control of pests, for carrying men and equipment to and from forest fires, for use on cattle ranches and in oil fields. Gradually it will evolve as a means of moderate-distance transport for commercial and private use.

Speaking of the private plane, he declared that though small private aircraft will eventually play an important role in all our lives they are not going to have the extensive use or be as important as automobiles. In cost, safety, and convenience small aircraft cannot be in the same category with the automobile.

Small aircraft, Dr. Furnas declared, "will never be able to compete with the third-hand broken-down flivver. They are inherently more expensive than automobiles and they must be kept in top condition or they are definitely unsafe. You can lose a fender or even blow a tire on a car with relative impunity but if you lose a wing or a helicopter rotor blade in the air you only do it once."

Science News Letter, March 3, 1945

Canada has almost doubled her *lard* production in the past 10 years; much lard is used in Canada for shortening, as that country produces almost no edible vegetable oils.



PENICILLIN PILLS—Dr. Raymond L. Libby is shown in his laboratory where he perfected the use of penicillin in convenient pill form. (See SNL February 24.)