

AERONAUTICS

Space Rocket Aircraft With "Dual Personality" Invented

Newly Patented Craft Is Conventional Airplane at Low Altitudes, Changing to Rocket in the Stratosphere

A VISTA of what air travel by rockets may be like 50 years hence has been opened by the patent of Prof. Robert H. Goddard, No. 1 rocket expert of the United States, just issued.

Dr. Goddard, Clark University scientist, has been experimenting for years at Roswell, N. M., with funds supplied jointly by the Carnegie Institution of Washington and the Daniel and Florence Guggenheim Foundation.

The Jekyll-Hyde aircraft, as described in the new Goddard patent, would change its shape from a conventional airplane at lower altitudes to a streamlined roaring rocket ship when the rarefied stratosphere is reached.

In the troposphere—the layer of air immediately surrounding the earth—the rocket airplane has wings, propellers, a tail skid, landing wheels, rudder and other conventional parts.

In the stratosphere and above, say over 100,000 feet, all projecting parts disappear into the body of the rocket ship and only stubby wings are left.

Instead of being driven by propellers at these high altitudes the rocket ship is hurled along with enormous velocities by jets of gases streaming at high speeds from nozzles in the tail of the rocket-plane.

Comfortably seated in the aircraft, passengers are protected from changes in temperature and pressure by the peculiar air-tight and insulated construction of the craft's body. Aboard, of course, is carried a supply of oxygen for the passengers.

When flying as an airplane, the propellers of this rocket-plane are not driven by supercharged gasoline motors, but by hot gases resulting from the combustion of hydrogen and oxygen. Shot against the blades of turbines to which the propellers are connected, these gases whirl them at tremendous speeds, much as steam is shot against the myriads of blades on turbo-electric generators.

From Dr. Goddard's Jekyll-Hyde aircraft may spring the rocket-propelled airliner which will solve tomorrow's transportation problems. There are those who hold that the rocket principle of

flight must be developed before man will be able to soar at high altitudes in the neighborhood of 100,000 feet and at speeds of 1,000 miles or more per hour.

The versatility of Dr. Goddard's craft seems to take care of several difficulties now surrounding rocket flight. At low speeds a rocket is inefficient. While flying several thousands of miles per hour, it does not require any wings, yet in taking off and landing the opposite is true. Dr. Goddard's rocket-plane takes both these factors into consideration.

In take-off and landing, as well as flying at lower heights where ordinary propeller-driven planes are most efficient, it is easily converted by the pilot into such a plane. On entering the upper heights where the propeller fails to "bite" efficiently into the rare atmosphere, but where rocket flight increases in efficiency, the pilot operates various levers which retract and fold up the propellers, telescope the wing tips, pull in the landing gear, thus converting the plane into a rocket.

Simultaneously the "rocket motor" goes into action, shooting from nozzles the gases which hurl the rocket through space. When the rocket plane has reached its destination, and re-enters the lower air levels, rocket motors are shut off, propellers, wing tips, rudders, landing gear all unfold like the wings of a bird, and the pilot lands the craft safely as he would any airplane.

Among the immediate difficulties of constructing such a rocket-plane is the need for a suitable metal to withstand the enormous forces of erosion where the jets of gases strike the turbines whose job it is to turn the propellers at low altitudes.

In present-day rocket tests, much less pretentious than the patented rocket-plane, difficulty is already found because it seems impossible to make an orifice which will withstand the escaping gas jets. The openings will work for a short while but the high temperatures plus the velocity of impact of the gas against the metal soon wears them out.

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TALL GRASS

Tall corn is not the only thing that ever grew that way, "out in Iowa." Before its age-old sod was broken by the plow, Iowa was the heart of the tall-grass prairie region. Stalks of the Big Bluestem often reached a height of over six feet. A few survivors, found in the corner of a cemetery in the southern part of the state, are here shown in the hands of Marion Morrison, Des Moines citizen.

MEDICINE

Pneumonia is Not Single Disease, But a Group

PNEUMONIA is not one disease but a group of diseases, Dr. Rufus Cole of New York City stated at the meeting of the American College of Physicians. He made it clear that physicians must understand this fact in order to give successful treatment.

Serums for treatment of different kinds of pneumonia are available, but the serum for one type is not effective in treating pneumonia of another type. Consequently physicians must make a laboratory test to determine which type of pneumonia the patient is suffering from. Serum treatment is most successful in treating pneumonia due to Type I pneumonia "germ," Dr. Cole said.

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Earthquakes waves have been known to travel twice round the earth.