



**HALF-CYLINDER WINGS**—The advantage claimed for this radically new plane is easy take-off and landing. It has passed test flights successfully.

## AERONAUTICS

## New Channel Wing Plane

Although straight stubbed wing sections can be fitted across the half-cylinder wings, it will fly without them. Empty, the plane weighs less than 800 pounds.

➤ A RADICALLY new type of airplane will be ready for taxi tests soon. It is a plane without the customary straight wings but with what are called channel wings instead. These are downward-bowing half-sections of cylinders with engines at the center of the arcs driving pusher propellers at the rear.

Viewed from the front it resembles somewhat ordinary rimmed eyeglasses with the upper half cut away. The fuselage replaces the bridge of the nose, and a projection to the rear carries the tail. Fitted across the top there may be, or may not be, a stubbed wing section. It will fly without, the manufacturers claim. They also claim that the channel wings can be fitted under the wings of conventional planes to give greater lift.

The manufacturer of this new plane is the National Aircraft Corporation, organized in Hagerstown, Md., to develop the so-called Custer channel theory of flight. The name is taken from Wil-

lard R. Custer, who developed the wing. Test planes of the type have already made successful flights, it is reported. First flights were made with straight wings included. Later the plane was flown with channel wings only.

The half-cylinder wings on the new plane are six feet in diameter. The length of the cylindrical section is approximately three feet. The six-foot propellers, mounted to the rear of the cylinders, suck the air through them. Each of the two engines deliver 75-horsepower. The empty weight of the plane is less than 800 pounds. One particular advantage claimed is easy take-off and landing. It is said to be able to clear a 50-foot obstacle within a 50-foot take-off run, and to land almost in as little space as required for a routine helicopter landing.

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Normally, Europe plants about half the total world area growing *potatoes*.

## PHYSIOLOGY

## Eggs Started by One Hen, Finally Laid by Another

➤ EGGS that were started in the body of one hen have been transferred to another, fertilized, and finally laid and hatched. This difficult zoological feat has been accomplished by Marlow W. Olsen of the U. S. Department of Agriculture, with the technical assistance of B. H. Neher, at the great Beltsville, Md., research station.

A color motion picture made by Mr. Olsen to show the steps in the operation, was shown at the meeting of the Poultry Science Association in Ft. Collins, Colo.

To obtain the "unfinished" eggs for the experiment, the hen that produces them is killed. Unfertilized ova are removed from her ovary, each still covered with its sheathing membrane or follicle. Placed in individual covered glass dishes, the ova soon shed their follicles, looking very much like yellow grapes slipping out of their skins.

A hen that is to serve as the physiological foster-mother is put to sleep with an anesthetic. A surgical incision is made into her flank, to find the open upper end of her oviduct, or egg-laying tube. Into this the unfertilized ovum is placed, and started on its way. The incision is stitched shut, and the hen quickly recovers.

Fertilization of the transplanted ovum is accomplished by artificial insemination methods, and the egg is presently laid in the normal manner. It is placed with other eggs in an incubator and after the normal 21 days produces a healthy chick.

This technique is more than a scientific stunt; it is designed to help get answers to certain difficult physiological and genetic questions. Already it has settled one long-disputed point, by proving that fertilization takes place in the oviduct, not on the ovary as some zoologists have contended.

This was accomplished by using two different breeds of hens; when the chicks were hatched they had the down color of the actual mother, not of the foster-mother in whose body the eggs were fertilized and developed. Male parentage was made certain by the use of a rooster with a pea-comb; this reduced, "cauliflower-ear" type of comb is dominant in heredity over the more usual, blade-shaped comb.

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