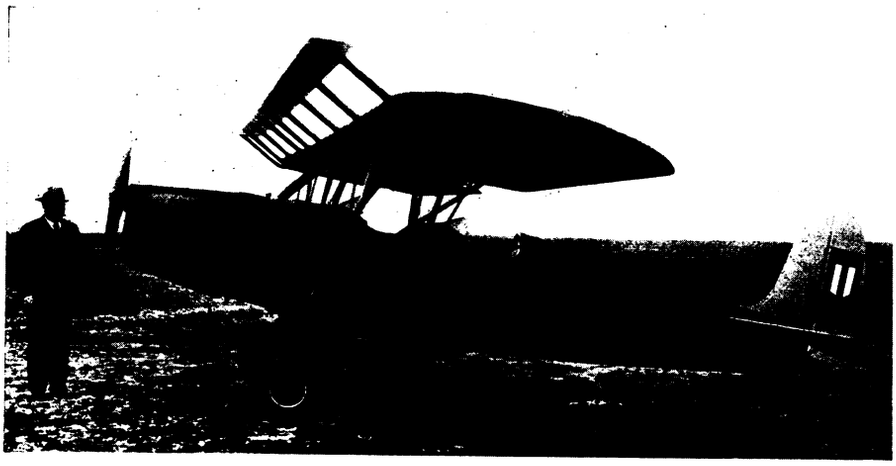

AVIATION

Airplanes Grow New Wings To Increase Lifting Power

ALTHOUGH the airplane is beyond the fledgling stage of its existence, there are being grown new wings for it in the Langley Memorial Aeronautical Laboratory at Langley Field, Va. From the standpoint of aerodynamics the wing is the most important consideration of the design of an airplane. In the world's largest wind tunnel and in a number of other wind tunnels the members of the staff of the National Advisory Committee for Aeronautics have investigated new and promising shapes of airplane wings, some full-size and some as models in the smaller wind tunnels. Then the most efficient types are constructed and placed on actual airplanes and tested in flight.

The modern airplane has been made possible as the result of the development of improved wing forms, more efficient and lighter engines and propellers, and improved control devices giving better control at or near the stalling speed. The present tendency in the design of airplanes is in answer to the demand for increasing maximum speed without increasing the landing speed of the airplane. The problem has been one of finding a shape and proportion of airfoil or wing that will produce the greatest lift with the least drag or resistance. In such improvement of wings or modifications of wings it is necessary to provide for sufficient lift and control at low speeds to make easy and safe landings.

Aircraft engineers who recently attended the N. A. C. A. conference at Langley Field were shown two promising wings which have application both to military and to commercial airplanes, especially of the type used by the private flyer. One type of wing investigated by the committee was designed by Harlan D. Fowler, Pacific Coast aeronautical engineer. The Fowler variable area wing consists of a normal wing with a small wing set in the trailing edge. The small wing moves down and to the rear of the main wing, increasing the area of the main wing and also acting as a slotted flange. Tests on a model of this wing show that it has two and one-half times the lift of the ordinary wing of conventional form. With this wing, when the pilot is about to land he swings the auxiliary airfoil or flap downward and to the rear of the trailing edge, in which position it gives the highest lift and permits a much lower landing speed. When the flap or auxiliary wing is in its high-lift position a slot is left between the main wing and the flap which accelerates the smooth flow of air over the top of the flap.

A simpler type of wing on which tests have been completed by the N. A. C. A. is one having a small auxiliary airfoil placed above and in front of the main wing. The combination of a small auxiliary wing with the conventional wing, illustrated on this page, increased the lift about 53 per cent. A small auxiliary wing has been added to a small commercial type airplane and on this particular airplane it decreased the landing speed from 49 to 39 miles per hour at a sacrifice of 2.5 miles per hour top speed. This new wing permits the airplane to glide at a much steeper angle without loss of control, which means that it can land over an obstruction in a much smaller space.

Science News Letter, June 4, 1932

CHEMISTRY

Gassing Flour Does Work For Digestive Organs

THE dough of wheat flour that puffs and blows up energetically as it rises saves the digestive organs work. For the more a dough gasses, the more readily it converts its starch into sugar easily assimilated by the human body. Digestive organs convert all starch into sugar before it can be used as a building material.

The relation between a flour's "gassing power" and its "diastatic activity," or ability to change starch into sugar, was discussed by M. J. Blish and R. M. Sandstedt of the University of Nebraska before the meeting of the American Association of Cereal Chemists.

"The terms 'gassing power' and 'diastatic activity' are frequently used interchangeably, although they are not strictly synonymous," they said. "Differences among flours in gassing power reflect variations not only in diastatic activity, but also in original sugar content."

Science News Letter, June 4, 1932

ASTRONOMY

Largest Spot of Year Appears on Face of Sun

A SUNSPOT so large that it would engulf the earth is now on the face of the sun. It is a single spot with a total diameter of 22,000 miles, of which 9,000 miles is the darker interior portion or umbra. Two earths of the size of ours, 8,000 miles across, could easily be placed within this disturbance in the atmosphere of the sun.

Observations made at the U. S. Naval Observatory in Washington by C. B. Watts, astronomer in charge of solar studies, show that the spot is just beyond the center line of the sun and four degrees north of the solar equator. It is roughly circular and is the largest single spot to appear on the sun this year. Keen eyes viewing the sun through heavily smoked glass were able to detect the spot.

A sunspot minimum is approaching and the sun has been relatively unspotted.

Science News Letter, June 4, 1932