

TRICK FLYING THE FORTE OF FIGHTING PILOT

IN pre-war days airmen such as Gustave Hamel and our own Lincoln Beachey, who thrilled thousands by beating the birds in skylarking flip-flops, were looked upon as foolhardy dare-devils who contributed little or nothing to aeronautic progress. In truth they were the pioneers in aerial acrobaticism, now dignified as the science of aeronautic military maneuvers.

The successful pilot of a fighting plane today is the birdman who is so literally a birdman that he puts his machine through all sorts of gymnastics instinctively and devotes himself chiefly to the business of fighting. His craft must be a living part of him, responsive instantly to his demands. And in combat, these demands are severely exacting.

There are tricks that win battles and tricks that are suicidal. Also there are tricks worth knowing and avoiding. Among the latter it is somewhat surprising to find looping the loop mentioned. Although valuable occasionally in righting a plane, the maneuver exposes the pilot to his enemy, prevents him from firing for the moment, and is liable to put his machine gun out of commission. The war offers a few examples of notable exceptions to the rule. Two or three Huns have been accounted for by pilots who have suddenly changed from fugitive to pursuer by a quick loop. But the caper is considered poor technique when dueling. Likewise the tail slide, unrivaled as a spectacular trick, is practically taboo. Such a feat subjects a machine to undue stresses and too frequently means certain disaster. A plane fitted with ailerons, as are most of the fighting craft, is fundamentally unsuited to withstand the reversal of pressure. One with warping wings, if strong enough, may come through safely, providing the pilot keeps his head. Inasmuch as performance of the feat depends upon full reversal of the controls, and participation produces a nauseating sensation, a pilot is in danger of becoming bewildered at a critical mo-

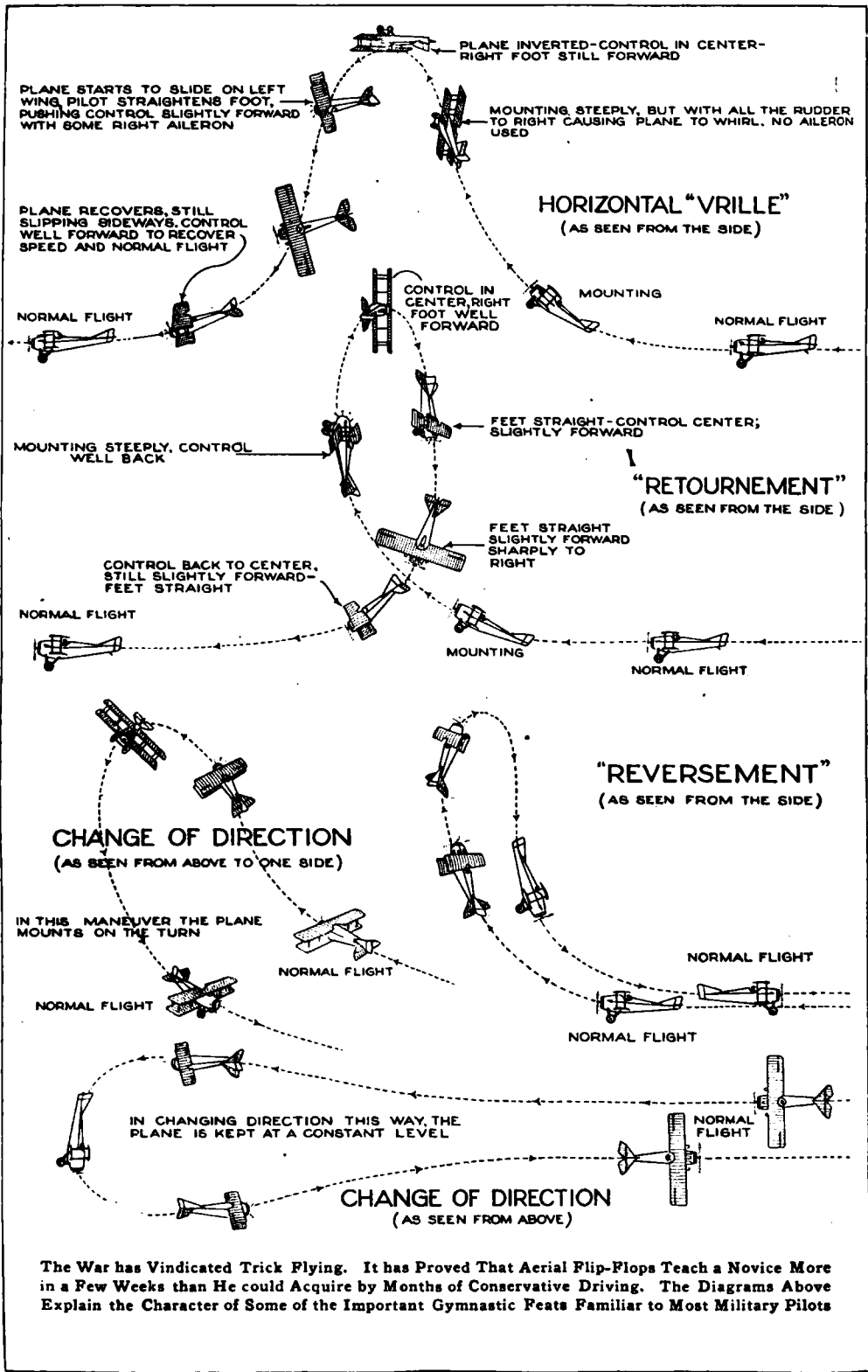
ment. These things combine to make tail sliding uncommon in war.

Tricks in flying are a good deal like tricks in swimming. Until one has dived from fair heights, swum under water with eyes open in quest of pennies tossed into a pool, and made shore in a storm after capsizing with a catboat a mile out, he doesn't begin to know the meaning of real self-confidence.

So is it with the airman. After successfully performing a few breathless whirligig capers he gains a sense of mastery that months of conservative flying could not instill in him. Thus the sensational "vrille" is the first trick taught student pilots of the swiftest Nieuports when they enter one of the famous French schools of acrobaticism for their final training. After doing this difficult feat two or three times, an airman is either eager for other gymnastic frolics, or thoroughly cured of all desire to pilot a "chasse" plane.

The vrille, often mentioned in dispatches, is undertaken by the pupil at an altitude of about 2,600 feet. While flying on a level, he throttles the engine, draws the control lever suddenly back and to one side, and simultaneously makes a quick forward movement with the foot on the corresponding side. The craft rockets upward, begins to stall, and with a spiral wrench turns to the side. The controls are centered at the outset of the sharp twisting motion. The lever is then gradually moved forward a few inches. The craft plunges straight down and, as the lever is pulled back, straightens out. The power is opened up and flight is resumed in the same direction and at the same elevation as at the beginning.

Another valuable maneuver is quick change of direction without reduction of speed or change of elevation. It is accomplished when flying straight at top speed by throwing the control lever full to the side and quickly rearward, at the same time applying soft pressure with the opposite foot. Response



BY COURTESY OF FLYING

is instantaneous. The plane, thrown on its side, swings in a horseshoe bend with startling suddenness, and comes out on an even keel as the controls are redressed.

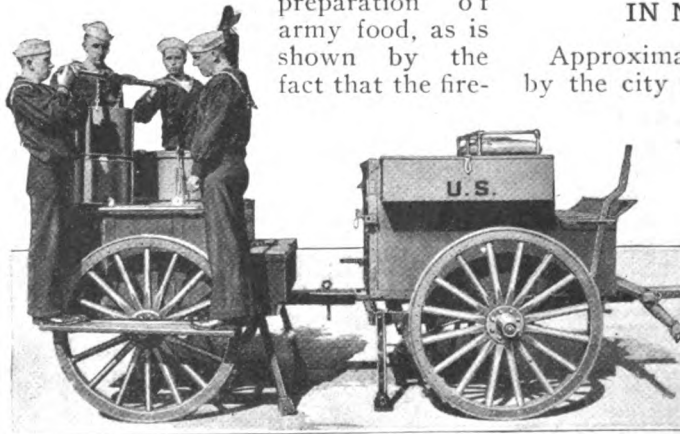
Of somewhat similar purpose is the trick of "reversement," once a favorite of Lincoln Beachey's in the later days of his flying and now quite frequently used over the battle fields. It permits change of direction without sacrifice of height and, when deftly negotiated, is very graceful. Maximum speed is needed and to gain it the nose of the plane is pointed down for a short dip before the control stick is drawn back halfway. As the machine mounts as if to loop, engine speed is reduced. Then the rudder is swung sharply and the craft thrown on its side. Letting out the engine, the plane is brought down to the normal line at full speed.

The figure described in "retournement" has a beginning somewhat like that of "reversing," and is classed among the most difficult aerial flip-flops. After completing it, flight is resumed in the original direction without loss of elevation. The plane swings up at a sharp angle, is thrown on one side, and the tail brought up. As a vertical position is neared a quick spin is produced and the craft curved neatly around to its original direction and down to the normal line. It is by using the ailerons that the trick is executed in a flash without loss in height.

These and many other maneuvers are tricks that save fighting pilots in critical seconds and win battles in the air. They all go to prove that, after all, the exhibition birdmen of a few years ago did much in advancing the science of aerial navigation.

PORTABLE ARMY KITCHEN HAS FIRELESS COOKER

Domestic-science methods have been applied in a very practical way to the preparation of army food, as is shown by the fact that the fire-



Portable Kitchen Outfit for Army, or Naval Forces on Land: The Food is Partly Cooked in the Rear Unit and Then Transferred to the Limber Which is Equipped as a Fireless Cooker

less cooker has been made an adjunct of the portable kitchen. In the outfit illustrated, in which food for 480 men can be prepared at one time, the four boilers are heated at once. When ready, they are removed and placed in fireless-cooker containers housed in

the limber, where the cooking is completed while four other kettles are put on the fire.

TO BUILD CONCRETE ROAD IN NEW ZEALAND

Approximately \$146,000 is to be spent by the city of Wellington, New Zealand, in building a concrete road, 25 ft. wide, to the suburb of Petone, which is six miles distant.

The new paving will occupy the center of a thoroughfare 100 ft. wide which is now macadamized. Only light vehicles, such as carts, motor cars, and small motor trucks, will be allowed on the concrete way. A special vehicle tax in addition to the present one, will be levied by Wellington, the proceeds of which will be devoted solely to the upkeep of this road. This tax applies to all motor-driven cars, and among them are also included motorcycles.