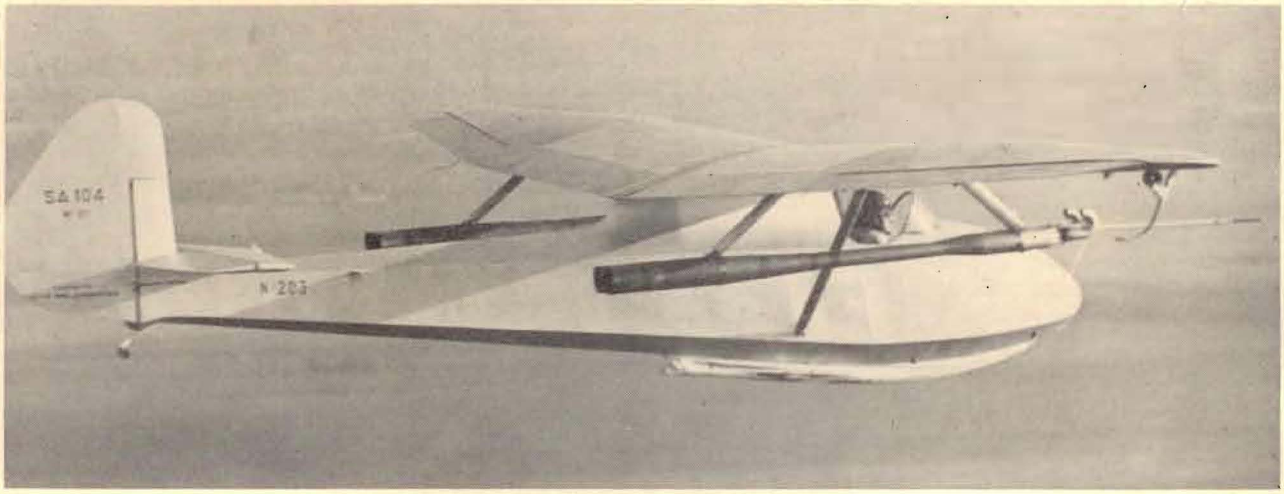

STOVE-PIPE GLIDER

By ALEXIS DAWYDOFF

A very interesting experiment in motorized gliders has recently taken place in France, which, since the war has done more in this type of development than any other country with the possible exception of the United States, or rather Ted Nelson. However, the French took a different road, exploiting the possibilities of reaction propulsion as the motivating force for their motorless aircraft.

Their latest project is a training sailplane, Emouchet, quite similar to the German Baby II, powered by four "Escopette" pulse-jet engines developed by Marchal and Bertin, two engineers of a large engine manufacturing concern S.N.E.C.M.A. Societe Nationale D'Etude et de Construction de Moteurs d'Aviation, (National Society for Study and Construction of Aircraft Engines) Basically, the Escopette is a resonance

jet engine operating on the same principle as the German Argus-Schmidt unit used on the German V-1 flying bomb, with the important exception that it has no mechanical flapper-valve and therefore no moving parts. The power cycle is achieved by turbulent air inside the jet pipe which acts as an aerodynamic valve. This type of powerplant has proven more efficient than the pulse-jet as well as more economical. Another important improvement was lack of vibration, which made it possible to mount on the glider. Each unit develops 22 lbs of thrust weighs only 10 lbs. including mount and consumes 14 gallons per hour. It has run without a hitch for 26 hours at full throttle on test stands.

The Emouchet, powered by four Escopettes was first test flown on December 19, 1950, fitted with a dropable dolly. Take off was in 320 meters (approximately 1000 ft.) in light downwind. Normal take off distance is about 750 feet or less. Rate of climb is 3 ft/sec. at 54 mph, maximum speed 115 km/h. In the near future it is proposed to mount Escopettes in group of three and it is expected that the rate of climb will increase to 6 ft/sec. and top speed to 140 km/h.

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the stabilizing radial flow. A swept-forward type wing will be more favorable and will have a tendency to stabilize the banking and circling condition. The swept-forward wing will come back automatically into straight flight if it is not forced into the turn by the setting of the control surfaces.

These few remarks might help us to visualize the aerodynamic effects peculiar to circling flight, and we will see that the design of a good performance sailplane should consider the very interesting problems concerned with the performance and stability in circling flight.