



The German approach, the "Hi 20." Note bicycle landing gear and retractable strut with geared propeller.

RPM but the final drive was through a 1:2.3 gear ratio. The weight is 20.5 kgs., including the special ignition device and carburetors. Two carburetors are mounted on top of the engine and are fed from a common tank in the fuselage. Fuel consumption averages 450 grams per horsepower per hour. The propeller is 1.4 meters in diameter and of 0.84 meter pitch.

The engine and the geared propeller are fitted on opposite ends of a strut mounted on trunnions to give a pusher configuration. The propeller and gearing are at the top above the wing, while the engine is at the foot inside the fuselage. The trunnions so position the strut that slipstream hitting the top of the elevators cancels the nose-heavy characteristic of the pusher-propeller.

Through a system of levers the strut can be pivoted to the extended or retracted position by the pilot at will. The opening in the top of the fuselage was to have been sealed by a fairing flap, but this is not used in the prototype. The strut and the motor at its bottom are encased in a dural fairing which also serves as a cooling duct. Cooling air enters a reservoir through two intakes on each side of the fuselage beneath the wings.

The propeller rotating just behind a vertical slit running the length of the back edge of the fairing draws the air up past the cylinders and out the opening.

A fire-extinguisher is located in the port-wing root within easy reach of the pilot. The starboard wing-root contains the fuel petcocks. The throttle is mounted on the stick. The entire assembly was fully tested before being installed in the prototype and was run for about 12 hours in periods of from 10 to 90 minutes.

The following are the general dimensions and calculated performance figures.

Span—14.8m	Speeds:
Length—6.9m	Max.—105-110km./hr.
Height—1.92m	Cruise—85km./hr.
Wing—18.7m. ²	Landing—55km./hr.
Weight Empty—280kgs.	Weight Full—380kgs.
Wing Loading—20.3kgs./sq.m.	
Initial rate of climb—0.75-1.12m./sec.	
Best gliding angle—1:20	
Best sinking speed—0.9m./sec.	

CANADIAN SCENE

By DOUGLAS A. SHENSTONE

George Illaszewicz of Victoriaville, Que., is, by his own account, the first glider pilot in Canada to be launched by auto-gyro. In October 1944, at Barker Field, near Toronto, designer Czerwinski's prototype Robin was out for test flights on a cold, misty day with low ceiling and very poor visibility. Walter Leavens was at the controls of the gyro and, in order to make certain the plane would not be pulled back, he left a slack of some 100 feet in the 250-foot tow rope. To quote the glider pilot, "the auto-gyro speeded up, and the rope started to straighten up faster and faster until, with a sudden jerk like a catapult, the glider left the ground, without having moved one inch forward on its wheel!" The most difficult part of the tow was keeping the rope out of the way of the horizontal rotor.

On this first attempt the tow pilot was worried about the glider, reducing his speed to almost the stalling point and turning "in a square like a square-dance," to quote Illaszewicz again. The glider pilot released at 300 feet, being unable to see either the tow plane or the airport; he made a successful landing, however.

Formation of the Canadair Soaring Club is good news from Montreal. Its 50 members are employees of Canadair Limited and include Stefan Brochocki, Silver "C", Ken Haviland, Bill Shuttleworth and Sheila Ward. F/L A. N. Le Cheminant has been invited to become an Honorary Member, as has Robert A. Neale, Canadair's Vice-President of Manufacturing.

The club has taken delivery of an SGU 1-19 from Leavens Brothers of Toronto. Plans also call for completion of the MU-13 on loan to McGill University from the National Research Council, and construction of a modified "Loudon" glider now nearing completion at the University of Toronto.

The problem of finances was faced realistically. The club raised a large percentage of necessary funds by sponsoring two dances and by setting the annual dues at \$5.00.

A large proportion of the membership has had flying

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run at *R.N. of 1,050,000. This value is in the R.N. range of most gliders. For the sample glider these values give results which are believed to be about 15 per cent in error.

Some discrepancies are believed to exist in the computations presented in this paper due to error in reading values from the graphs referred to in T.R. 573 because of the small size of those graphs. Such errors do not seriously influence the trend or results presented here.

External trailing edge airfoil flaps are recommended in view of their excellent characteristics. Profile drag and lift coefficients are comparable to the Fowler flap. A cursory check of the characteristics of the two might lead one to believe the Fowler flap to be far superior if one is not careful to note that the coefficients for the Fowler are based on the wing area, while the external flaps coefficients are based on the combined wing-flap area. A feature in favor of external flaps is the simpler structure and actuating mechanism required.

Full-span flaps are recommended, as studies indicate partial span flaps would render too little to justify their use for minimizing sink and turning radius in the spiral glide.

Adapting flaps to our sailplanes present problems that the designer will have to compensate for and which will add cost. It is the opinion of the writer that use of full-span flaps will give the soaring pilot an edge in working small thermals that cannot be experienced in gliders with the plain wing.

From the results obtained in this and other studies, it is concluded that further advancement in sailplane performance may be realized by "flapping" the wings.
*R.N.—Reynolds Number

YOUTH ON THE WING

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Quiet flight in gliders makes teaching and learning conditions ideal. The teacher does not have to shout above the engine noise. Hearing instructions in normal tones tends to build a beginner's confidence and ease tension. There is no mental hazard from a vibrating motor; and fewer instruments and gadgets permit the student to concentrate on his flying.

We believe, after three years' experience at the Schweizer Glider School in training scores of G.I.'s and private students of all ages, that dual instruction is the fastest and safest way to train beginners to glide and soar. (Editor's Note: Another method that holds much promise where there is a limited amount of air traffic is combining the advantages of single and two-place training in a system utilizing two-place gliders, but interspersing dual flights with solo flights every step of the way from ground tows and skims up through 360's and soaring flights.)

Soaring is a "natural" for teen-age boys because of the cleanness of the sport; the group participation element—meeting the boys' desire to be "part of the gang;" and above all, the sheer ecstasy of engaging in flight second only to that of the birds.

Gliding can be learned at a minimum of expense, in a group program where volunteer work and sharing of costs is practiced. Soaring, like most of life's joys,

must be shared if it is to be perpetuated. This is one of the best reasons why those now active in the sport should definitely campaign to bring the teen-agers into the movement.

It has been suggested that the Northrop Youth Awards, first offered at the 1948 National, be extended to include the best flight performances made by the younger pilots throughout the year. It is believed this would encourage more boys to make outstanding flights, and naturally this increased activity would be good both for the participants and the sport in general. *(This has now been accomplished. Outstanding flights made between July 11, 1948 and July 10, 1949 should be submitted on a regular Silver "C" application form with explanatory letter.)*

Broadening the scope of your activity to include young boys in your area will be an important step forward and should be a top-priority project this year for every SSA member. Not only will this help the soaring movement, but it will also be a patriotic contribution to the vital program of keeping America strong in the sky.

Young America eagerly awaits the opportunity to get into the air. *Let's get at it!*

CANADIAN SCENE

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experience. Chief Instructor Stefan Brochocki will carry on the training at St. Eugene Field, assisted by instructors from the Montreal Soaring Council.

A good deal of thought has been applied in the formation of this club to encourage family groups to participate, and thus insure good attendance for week-end flying. Overnight facilities are being prepared at St. Eugene and even a baby-sitting subcommittee is under consideration.

The Gatineau Club is considering disposing of its nacelled Dagling and a Cadet; although no decision has been reached inquiries will be welcomed. Should such plans be completed, this club would have an ideal set-up - a Gruneau, an Olympia and a Pratt-Read, with aero-tow and a winch available at Carp Airfield.

Jack Ames, recently re-elected president of the Toronto Gliding Club, reports that Stuart Alexander is now Vice President and Henry Dow third Director and Treasurer. This club has big plans for the coming year, including a committee to work on meteorology, plans for a new and better soaring site, fixing the winch (a perennial job) and institution of a pay-in-advance-and-get-a-10%-reduction flying payment scheme.

George Dunbar, President of the Gull Gliding Club, at Dartmouth, N. S., reports some interesting activities with their Cadet on frozen lakes in the vicinity of the city. In weather which was dead on zero at 8:30 in the morning and warmed up but little during the day, members of the club made a number of short hops by autolaunch and collected such a crowd of interested onlookers who, to quote Dunbar, "got on the ice, in our way, on the cable and in our hair," that they finally had to give up and use a 200-foot tow-rope.

An error in a recent issue naming Don Cadenhead as President of the Falcon Gliding Club of Vancouver, should be corrected to read Gary Cadenhead, his cousin.