

PART V.—CIVIL AIR TRANSPORTATION*

NOTE.—The treatment of military activities and organization falls more properly under the subject of National Defence (see "Air Force, Royal Canadian" in the Index).

Section 1.—History and Administration

Subsection 1.—Historical Developments

About the turn of the century W. R. Turnbull, who may be termed the "father of aeronautical research in Canada", was experimenting with aerofoils and propellers at Rothesay, N.B., where, in 1902, he set up the first small wind tunnel in Canada. He discovered the laws of the centre of pressure movement on aerofoils, and made deductions from these laws which explained the longitudinal stability of aeroplanes. He also propounded the static laws of air propellers and in later years evolved and developed the controllable-pitch propeller.

At the time that Mr. Turnbull was beginning his work, Dr. Graham Bell was experimenting with kites and air-screws in laboratories at his summer home at Baddeck, Cape Breton Island. The "Aerial Experiment Association", formed in 1907, comprised five members: Dr. Bell, J. A. D. McCurdy and F. W. Baldwin, two young Canadian engineering graduates, Glen Curtiss, a motor-cycle engine builder from New York State, and Lieut. Selfridge, on leave from the United States Army. As a result of the work of these associates, the first flight in Canada was made at Baddeck on Dec. 7, 1907, in the *Cygnets*, a tetrahedral kite, which was towed by a steam tug. On Feb. 23, 1909, McCurdy's aeroplane, the *Silver Dart*, was taken out for tests on the ice at Baddeck. With its designer as pilot and under its own power, it flew for half a mile, rising thirty feet above the ice. This was the first aeroplane flight by a British subject. The *Silver Dart* was an advance on any aircraft previously flown, notable features being a three-wheel undercarriage, tapered wings, and the use of aileron controls.

Progress was rapid throughout the civilized world in the development and design of heavier-than-air flying craft from 1908 to the outbreak of the First World War and this progress was accelerated during the War by the intensity of competition for superiority in the air, and by the wide field for experiment which the war activities provided. Officially, Canada took little part in these developments. However, many young Canadians entered the flying service of Britain and, to facilitate their recruitment and preparation, training units were established in Canada. To provide the aircraft for training purposes, Canadian Aeroplanes, Limited, was organized by the Imperial Munitions Board and, by the end of the War no less than 2,900 planes had been built by this industry. In the latter part of the War, owing to the extension of submarine raiding to the Atlantic Coast of America, a Royal Canadian Naval Air Service was organized to patrol the coasts of the Maritime Provinces and the Gulf of St. Lawrence. Bases were established at Halifax and Sydney, N.S., and patrols inaugurated on Aug. 25, 1918.

At the end of the War, thousands of young men with training and experience in the British flying services returned to Canada, full of enthusiasm for aviation, and seeking an opportunity to apply their new knowledge to peacetime developments. At the same time, governments were disposing of their surplus stocks of planes at

* Descriptive and administrative information has been prepared from material supplied under the direction of A. D. McLean, O.B.E., Controller of Civil Aviation, Department of Transport, and W. S. Thompson, C.B.E., Director of Public Relations, Canadian National Railways, Department of Transport: statistics have been compiled by G. S. Wong, Chief of the Transportation and Public Utilities Branch of the Dominion Bureau of Statistics.