7444
26/5/44

<u>Canadian Aeroplanes Limited</u>

<u>References:</u> A.H.B. files RU/4527; D34669; RU/4021; RU/4867; 87/RFC/483; 87/RFC/175; RU/4015; RU/4016; 15/40/194.

In 1915 Curtiss Aeroplanes and Motors Limited of Buffalo had opened a branch factory in Toronto, under the management of Mr. J.A.D. McCurdy, to construct training machines for the Admiralty. From time to time during the next two years the War Office had considered various proposals for the manufacture of aircraft in Canada but it was not until late in 1916 that a decision was reached to actually proceed with plans. On November 25, 1916, the Imperial Munitions Board received a preliminary order from the Ministry of Munitions for the construction of Curtiss aircraft by a Canadian company. Canadian Aeroplanes Limited was then formed and incorporated (December 15, 1916) nominally as a private enterprise but actually with all its capital owned by the Board. The Canadian Government advanced the necessary capital on loan and the factory was held as an asset against imperial debts. Mr. F.W. Baillie, Director of Aviation for the Board, assumed management of the company and temporary premises were leased, until May 1917, in part of the John Inglis Company's Boiler Works on Strachan Avenue, Toronto, where the Curtiss Company had also been located.[1] Here aircraft construction was started with the first output, of 22 machines, scheduled for February 1917.

While work proceeded in these temporary quarters another site of nine acres was selected on Dufferin Street, Toronto, and a contract was signed on January 26, 1917, with Jackson-Lewis Company, Limited, for the erection of the necessary buildings at a cost of $1,000,000. Construction work began three days later and the plant was completed on June 1. Five hundred to six hundred men had been employed in the erection of the ten buildings with 139,000 square feet of floor space. The factory had been planned in such a way that ready and rapid expansion was possible.

On May 1, 1917, before the construction work had been completed Canadian Aeroplanes Limited vacated their temporary quarters and moved into the new factory. The remarkable growth of this plant, under Mr. Baillie's able management, was described as "one of the chief factors in enabling the rapid development of aviation in Canada." Original plans had visualized an output

1. There were two small factories on Strachan Avenue and Atlantic Avenue.

of 15 aircraft weekly but before the end of 1917 this production had been greatly exceeded and the factory, employing 1,500 men, was turning out the equivalent of five complete aeroplanes daily.[1]

Only the airframes were manufactured at Toronto the necessary O.X. engines coming from the Curtiss Company's American factories at Buffalo and Hammondsfort. Representatives of Canadian Aeroplanes Limited periodically visited these plants in attempts to speed up the motor production, which lagged far behind the demand, and also cooperated with the American Aircraft Production Board in efforts to ensure adequate engine supplies.[2]

The Imperial Munitions Board paid Canadian Aeroplanes Limited $5,250 for each Curtiss JN4 (Canadian) airframe, equipped with tachometer, oil gauge and petrol gauge; and paid the Curtiss Company $2,375 for each Curtiss O.X.5 engine, so that the complete biplane cost $7,625.[3]

Eleven months after the company was established Brig. Gen. Hoare pronounced it "a really astonishing success"; as a business proposition the factory had already paid for itself.[4]

In 1917 Canadian Aeroplanes Limited began construction of Curtiss J.N.4 training machines at Toronto. From time to time proposals were made to manufacture other types of aircraft in Canada. In the spring of that year the Fairey Aviation Company sought to establish a seaplane factory in the Dominion, but the Air Board did not approve, pointing out that such a move "would have the effect of dissipating our strength and would, moreover, be useless unless corresponding provision were made for the supply of engines in Canada."[5]

Messrs. Sage also sought to develop an aircraft industry in Canada and were likewise denied permission on the grounds that the types which they proposed to manufacture "held no place in the programme of construction for the British or Canadian Government."[6]

---

1. The R.F.C. in Canada found it necessary, however, to caution the manufacturers that quantity of output was not the only objective. "The whole idea of (aircraft) inspection is new to them out here, and they have not yet fully realized that we do not worship at the shrine of 'Production'". Major D.L. Allen to Brig. Gen. L.E.O. Charlton, April 13, 1917. RU/4021. But on June 6, 1917 Lt. Col. Hoare wrote home, "We have an admirable factory here and can turn out machines sufficient for any numbers ...." 87/RFC/483.

2. See RU/4527 - "Memorandum on Development of the Royal Flying Corps in Canada" prepared at the end of November 1917. This lengthy document was the basis for much of Alan Sullivan's "Aviation in Canada".

3. See file RU/4867

4. Brig. Gen. C.G. Hoare to Lt. Col. B.C.H. Drew, November 15, 1917. Its production had risen from 18 aircraft in February to the equivalent (including spares) of 210 per month. 87/RFC/175.

5. Minutes of Air Board, 71st Meeting, April 2, 1917.

6. Ibid., 82nd Meeting, April 30, 1917. At another meeting Gen. Henderson said that there was no intention of having in Canada (for the R.F.C.) /ow

While the Canadian Aeroplanes Limited was engaged primarily, indeed almost exclusively, in the manufacture of the J.N.4 training biplane, some consideration was given to the construction of the D.H.6, a standard training plane of the R.F.C., and some experimental airframes were made in March 1917. The Air Board and the R.F.C. favoured the latter type as it could take any one of the three types of engines which a pupil pilot needed to become accustomed to. It had the further advantage that it could be fitted with the R.A.F. engine as well as the Curtiss O.X. while the J.N.4 would take only the Curtiss supplies of which were definitely deficient.

Canadian Aeroplanes Limited, however, did not favour the suggested conversion in manufacture. The company believed that with its new factory it was in a position to supply all the aeroplanes required for use in Canada, provided Curtiss would supply the necessary engines. To change over now to a new type would only retard production. The engine problem would be facilitated if the British Government did not place further orders for aircraft with the Curtiss Company in the United States.[1] The Board agreed to this suggestion and Gen. Brancker said the R.F.C. was prepared to take the Curtiss type instead of the D.H.6 if it would ease the situation. After further study, however, the Air Board decided that Canadian Aeroplanes Limited should continue manufacturing the Curtiss machine until all the necessary tools and material could be prepared for a change-over to the D.H.6 without affecting output. Gen. Henderson expressed a preference for the latter type because of its adaptability to engines, and because it was "generally speaking .. a better and more modern training machine than the Curtiss." The Board also believed the utlimate cost of production would be rather less than that of the American machine.[2]

Apparently no further action was taken with respect to the D.H.6 - known to the R.F.C. as "The Clutching Hand" - but later in 1917 steps were taken to prepare for a change over to another versatile training machine, the Avro 504 which became, and for many years remained, the basic trainer of the Royal Air

---

1. Cable I.M.B. to M. of M., May 3, 1917. The new C.A.L. plant had a capacity of 60 aircraft per month. By the end of May the R.F.C. in Canada would have received 230 Curtiss trainers, 80 from C.A.L. and the remainder from Curtiss Buffalo.

2. Minutes of Air Board, 84th, 85th and 86th meetings, May 4, 7 and 9, 1917. The D.H.6 cost £700, the Aircraft Company, designers of the type, being entitled to a 5% royalty for each machine manufactured in Canada.

Force. Experience "proved definitely .... that a pupil can be taken, without any previous training or knowledge of aeroplanes, and put on an Avro Mono or Avro Le Rhone machine, with dual control and then solo, and from that machine straight on to Bristol Fighter, DeH.4, Sopwith Camel, etc. etc." In view of this it was decided to eliminate gradually all types of training machines except the Avro fitted with the 100 h.p. Mono or the 110 h.p. Le Rhone motors.[1] Some Avros were manufactured by Canadian Aeroplanes Limited but the war ended before production had proceeded far. In May 1918 introductio of the Avro was still being considered (see RU/4015) and in September it was estimated that the change-over in types would cost $1,000,000 spread over a period of four months.(RU/4016)

In August 1917, Lt. Col. Hoare suggested that Canadian Aeroplanes Limited should start manufacturing service type aircraft during the winter. This would make it possible to completely train cadets in Canada with no need for a finishing off period in Britain.[2]

This suggestion was put before the Air Board by General Brancker in September 1917. He proposed to Sir William Weir that Canadian Aeroplanes Limited should change about the end of the year from the manufacture of the Curtiss type only to the manufacture also of the Sopwith "Pup". The supply of engines for the latter type, however, presented difficulties.

The current capacity of the Canadian company was 100 Curtiss machines monthly; General Brancker wished this to be increased so as to allow 108 monthly for Canadian requirements and, beginning in January 1918, 25 monthly for Australia. Mr. Baillie, manager of the company, said he could extend his plant so as to double the output (i.e. 200 machines monthly) and suggested that the company should obtain contracts from the American Government for the surplus aircraft. As there was then no desire to bring aircraft from Canada to Britain, the Air Board approved Mr. Baillie's suggestion "provided that the surplus only should go to the American Government after our demands had been met." When the Board considered the advisability of training pilots on the Curtiss, then on the Avro (in order to obtain experience on rotary engines) and

---

1. Letter, Brig. Gen. Guy Livingstone, D. Air O., to G.O.C., Imperial R.F.C., Toronto, November 10, 1917. A.H.B. file 15/40/194.

2. Hoare to Charlton, August 4, 1917. 87/RFC/483.

finally on the single-seater "Pup", Sir William Weir said he believed Mr. Baillie "was very efficient and that he would be able to undertake the production of three different types of machines ....."[1]

The question of aircraft supplies from Canada for Australia came up before the Air Board again in November. The Imperial Munitions Board in Canada cabled that 50 Curtiss machines could be shipped to Australia in December and 25 a month thereafter together with necessary spares; they requested, however, a definite understanding on the financial position. Sir William Weir replied that "the financial position in Canada was acute and the Imperial Government declined to make any disbursement in Canada beyond the amount which had been settled. It was suggested that the Commonwealth of Australia should pay for these aeroplanes either to the Ministry of Munitions or to the Canadian Government. The Canadian Government were unable themselves to pay for them." The Air Board referred the matter to the financial department of the Ministry of Munitions.[2]

The conversion of Canadian Aeroplanes Limited from the Curtiss to the Avro depended on the supply of engines. At that time only Curtiss motors were available; if engines suitable for the Avro later became available the question of a change over could be reconsidered.[3]

---

1. Minutes of Air Board, 138th Meeting, September 12, 1917.
2. Minutes of Air Board, 165th Meeting, November 14, 1917.
3. Minutes of Air Board, 163rd Meeting, November 9, 1917. The C.A.L. had cabled inquiring whether it should concentrate on Curtiss or begin building Avro machines. Later cables concerning C.A.L. were referred to Sir William Weir for consideration.

OFFERS OF AIRCRAFT

During 1915 there had been another spate of offers to sell or construct aircraft for the Canadian Government. J.M. Landry, who styled himself "Premier Aviateur Canadian", offered to sell his brand new 1915 model Blériot monoplane;[1] the Terrell Aeroplane and Exhibition Company of Utica, N.Y., had for disposal a used Burgess -- Wright hydroaeroplane with 40 h.p. Sturtevant motor. But the Department of Naval Service did not desire to buy aircraft.

From A.P. Flagler and his associate M.C. Tunison of San Francisco came a detailed and ambitious offer to build 1000 aircraft in 24 weeks; Alfred W. Lawson of New York, formerly president of the Farman Company of America, was more modest; he was willing to build almost any type of aircraft to any government specifications but suggested as a beginning that he construct two Farman pushers in Canada. R.A. Kennedy of Renfrew, Ontario, announced his intention of starting an aircraft factory in the Dominion. Some of the applicants had a measure of previous experience in the construction of aircraft; many had no experience whatever and no qualification other than willingness and calm confidence that they could design and build military aircraft. To them all the Naval Department replied that it had no wish to purchase aircraft or contract for their manufacture. Some of the more serious proposals were referred to the War Office or Admiralty who replied that they had no further need for American-built aircraft.

In 1916 another curious case arose. Harold Bunn of Toronto had spent $4,000 on the purchase of a 6-cylinder 80 h.p. biplane (of unspecified make), hoping that with it he could get to war as an aviator. But after making five or six flights Bunn found himself stuck with his machine; he had no money to go into training; he could not use the machine in Canada and could not sell it there. But when he sought to send it to the United States the Customs Department forbade its export as it was "part of the Empire's resources". He offered his white elephant to the Naval Department for $600 but the latter had no desire to purchase and suggested to the Customs that it might allow the aircraft to be exported to the United States.

---

1. Landry had taken his pilot's ticket in France and came out to Canada in July 1914 with his new Blériot machine intending to give exhibitions of "looping the loop". The war intervened. In December 1915 the Collector of Customs at Quebec put up for sale his unclaimed machine; it was valued at $4,491; duties and other charges amounted to $1942.99.