



DISPATCHES

Issue 2

November 1998

INTO THE BLUE Pilot Training in Canada, 1917-18

Hugh A. Halliday and Laura Brandon

In 1917-18 the British air force directed an ambitious flying training operation in Canada. The scheme had no precedent, but it inspired the vast British Commonwealth Air Training Plan of the Second World War, and subsequent training programs in Canada for aircrew from nations of the North Atlantic Treaty Organization that continue to the present day.

The importance of air power had been growing from the outbreak of the First World War. Aircraft photographed enemy defences, directed the heavy guns that bombarded those defences, and warded off opponents' aircraft intent on performing the same tasks. As aircraft became more vital to waging war, Britain required greater numbers of airmen. In late 1916, expansion plans of the Royal Flying Corps (RFC) called for the creation of 35 new training squadrons. Most would have to be located outside of Britain itself, where it was difficult to find space for more airfields and factories to produce more training aircraft. These requirements were the genesis of the training program in Canada of 1917-18.

As early as December 1914 Canadians had begun to enter the RFC and the Royal Naval Air Service, some by enlistment in Canada, most by transfers from the Canadian Expeditionary Force

(Canada's overseas army). The Canadian entries had commenced as a trickle; by late 1916 they had become a steady stream. The Canadian government, not interested in forming its own air service, did not hinder British recruiting efforts in this country, but neither did the government do anything to promote aviation. Faced with this official Canadian apathy to aircraft, yet anxious to secure Canadian resources for the RFC, British authorities adopted a policy best described as "If you want it done - do it yourself".

Important assistance came from the Imperial Munitions Board (IMB). The board, located in Canada and staffed largely by Canadians but directed by the British government, organized the production of artillery shells and other war matériel for Britain. The IMB secured land for air fields in southern Ontario, arranged for construction of barracks and hangars, and established Canadian Aeroplanes Ltd. to manufacture Curtiss JN-4 training aircraft for the program.

Lieutenant-Colonel (later Brigadier) C.G. Hoare, the RFC officer who headed the new training organization in Canada, moved quickly when he arrived from Britain in January 1917. He ordered that flying instruction commence at Long Branch on 28 February 1917, although buildings were still under

construction and the first JN-4s had been completed and approved for service only days before. The largest school, Camp Borden, began flying training on 30 March 1917.

Thereafter, the program mushroomed. By the end of the war there were facilities at Hamilton (Armament School), Toronto (School of Military Aeronautics, recruiting depots), Long Branch (cadet ground training), Beamsville (School of Aerial Fighting), Armour Heights (pilot training, School of Special Flying to train instructors), Leaside (pilot training, Artillery Cooperation School), Camp Rathbun (Deseronto, pilot training), Camp Mohawk (Deseronto, pilot training) and Camp Borden (pilot training). The quarters occupied included public school buildings, a prison, and much of the University of Toronto. Camp Borden alone had accommodation for 122 officers, 496 cadets and 1,014 other ranks. The name had also changed to Royal Air Force Canada, the RFC and Royal Naval Air Service having been combined to establish the Royal Air Force (RAF) in April 1918.

The Canadian organization provided training up to the advanced level where pilots were almost - but not quite - ready to participate in combat. Finishing touches would be applied at advanced schools in Britain or France. The training in Canada grew more sophisticated as the instructional staff gained experience, the RFC provided details for improved methods being developed in Britain, and units at the fighting fronts sent "feedback" about how new aircrew could be better prepared. The most important changes came with the adoption by 1918 of the Gosport System developed at a school in Gosport, England, by Major R.R. Smith-Barry.

The Young Man's Element —the Air



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Royal Flying Corps

Originally, flight training had taught pupils very little about why an airplane behaved as it did; 'by the book' instruction drilled the students on what dangerous manoeuvres to avoid. By contrast the Gosport System taught the dynamics of flight and how to apply that knowledge when in the cockpit. For example, earlier pupils had been simply warned to avoid spins; those of 1918 were taught how to get into a spin and then recover from it.

Their basic flight trainer was the Curtiss JN-4 (Can), an American design modified by Canadian Aeroplanes Ltd. to meet military training needs. The JN-4s flown in Canada carried a variety of colourful

and distinctive markings including maple leaves, terriers, black cats, shamrocks, and Jolly Roger insignia. Some were named for cities such as Edmonton and Montreal; at least six bore names commemorating battles of the War of 1812.

William Hector Ptolemy was a typical trainee. An instructor took him up for a brief introductory flight, at No.88 Canadian Training Squadron (CTS), Armour Heights, on 3 December 1917. He took the controls for the first time during a 25-minute flight two days later. Bad weather occasionally interrupted his training and on 16 December 1917 he broke a propeller while landing in snow. He smashed another propeller

on 22 December, and generally had difficulty with turns. On 3 January 1918 he flew for 40 minutes, executed seven landings, and made an emergency landing when his engine failed. He reported his first landing on skis on 29 January. Finally, on 5 February, having flown seven hours 25 minutes with an instructor, he made his first solo circuits; most pupils soloed after five hours.

Thereafter, Ptolemy regularly flew alone. His terse logbook entries hint at his excitement; on 11 February he was airborne 70 minutes and described the trip as "Up to Newmarket - went for a joyride". In mid-February he moved to the training squadrons at Leaside where more advanced manoeuvres were taught, notably formation flying and the first aerial photography exercises. On 10 April 1918 he first reported dropping bombs. He subsequently attended the School of Aerial Gunnery at Beamsville for a brief advanced course in gunnery and photography before being posted overseas. After further advanced training in Britain and France he reported to No.201 Squadron, which was equipped with Sopwith Camel fighter aircraft, on 4 October 1918. Following the war he became a bush pilot.

With virtually no experience in severe cold weather flying, the RFC authorities feared that training might be shut down entirely for the winter of 1917-18. During those months, therefore, a large portion of the program was relocated to Fort Worth, Texas, where the organization also trained many Americans and exchanged information on training methods with the US flying services. Meanwhile, the training squadrons that remained in Canada that winter fitted their JN-4s with skis, worked out special cold-weather formulas for lubricants and kept the system operating at least as well as the organization in Texas, where mud proved as frustrating as deep snow.

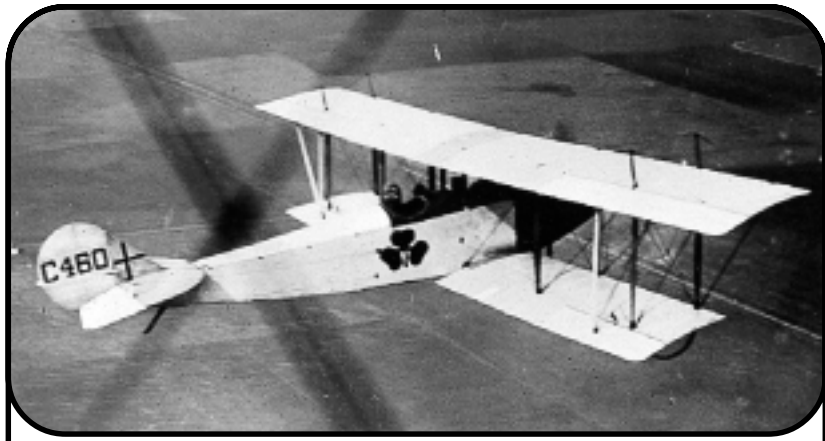
RFC Canada graduates of the plan began sailing for Britain as early as June 1917. Probably the most famous was Lieutenant A.A.

McLeod, who trained at Long Branch and Camp Borden, received his wings in July 1917, and reported to No.2 Squadron (Armstrong-Whitworth FK.8 army cooperation aircraft) on 29 November 1917. His brilliant career culminated in an action on 27 March 1918 for which he was awarded the Victoria Cross. Other distinguished alumni included Captains D.R. MacLaren and W.G. Claxton (54 and 31 estimated aerial victories, respectively).

Overall, the training scheme enrolled 9,200 cadets. Of these, 3,135 completed pilot training and more than 2,500 were sent overseas; the balance of graduates were either retained as instructors or were awaiting postings to Britain when the Armistice was signed. In addition, 137 observers were graduated of whom 85 were sent overseas. The program also turned out at least 7,400 mechanics. A number of American personnel, both navy and army, were trained in Canada, as were four or five White Russians.

The results were achieved at some cost. At least 129 cadets and some 20 instructors were killed in flying accidents. A particularly nasty instance was a head-on collision at Beamsville on 2 May 1918. One instructor was shaken up and the other had a broken hip; the two pupils in the front cockpits took the full force of the impact and were killed. Yet the safety record improved. In April 1917 there was one fatality for every 200 hours flown, in December 1917 one fatality for every 1,500 hours, and in October 1918 one fatality for every 5,800 hours flown. The most publicised accident of the program involved no injuries: a JN-4, attempting a forced landing on Oshawa's main street on 22 April 1918, became entangled with telephone wires and pinned near the top of a large store front where it remained suspended for several hours.

While the organization was dedicated to training, it made news in ways that heralded future developments. The first airmail in Canada was carried by Captain Brian



CWM AN19800224-015 (3)

The JN-4 (Can)

Canadian Aeroplanes Limited was incorporated on 15 December 1916 for the sole task of building training aircraft for the RFC Canada training program. It took over the Toronto quarters of an earlier firm, Curtiss Aeroplanes and Motors Co. An American design, the Curtiss JN-4, had been selected as the standard instructional machine, but it needed modifications including a stick control rather than a wheel (thus conforming to standard overseas practices) and a strengthened tail for hard landings. The type was designated JN-4 (Can) to distinguish it from other versions being manufactured in the United States.

The prototype JN-4 (Can) was flown on 1 January 1917. Following extensive tests, it was delivered to the RFC on 22 February 1917. A total of 1,200 were built, of which 680 were exported to the United States following American entry into the war; Canadian Aeroplanes Ltd. also manufactured enough spare parts to assemble another 1,600.

The type was pleasant to fly. Nevertheless, with a 90-horsepower Curtiss OX-5 engine, the JN-4 (Can) was slightly underpowered; this was most apparent as new armament was added. The JN-4 (Can) had a maximum speed of 120.7 kmh and cruised at 96.5 kmh. It had a ceiling of 3,353 metres. The upper wingspan was 13.29 metres and the length was 8.29 metres. A JN-4 (Can) weighed 631 kg empty and about 872 kg loaded with pilot, fuel and training equipment.

A restored JN-4 (Can) is now displayed in Ottawa at the National Aviation Museum.

Peck from Montreal to Toronto on 24 June 1918, and four additional airmail flights (Toronto to Ottawa and return) were conducted by RAF instructors between 15 August and 4 September 1918; the Ottawa terminus was the Rockcliffe Rifle Range, an area now occupied by the National Aviation Museum.

Although the air training scheme had begun with negligible Canadian direction, it came to include many Canadians at all levels. The Canadian Militia assigned paymasters, doctors, and other non-flying personnel to the various schools and headquarters. Increasingly, Canadian pilots and

observers joined the instructional staff. Some were recent graduates of the scheme; others were veterans of the Western Front. By November 1918, Canadians commanded the School of Aerial Fighting, two of the three training wings and twelve of the sixteen training squadrons and roughly 60 percent of all instructors were Canadians. An unexpected development was the recruitment of Canadian women into technical trades, the result of severe shortages of manpower by late 1917. Thousands of women volunteered and over 1,200 were accepted. They served, without fanfare, chiefly as mechanics and drivers.

Historian S.F. Wise has described the RFC/RAF Canada scheme as “the single most powerful influence in bringing the air age to Canada”. The JN-4s left over after the war were less important than the pool of men determined to fly and service them. The public, at least in the Niagara-Hamilton-Toronto-Deseronto arc, became accustomed to aircraft and no longer viewed them as novelties or menaces. The RFC/RAF Canada organization proved the feasibility of year-round flying in this country and even developed special winter flying clothes. The RFC/RAF Canada program was a foundation on which was built the saga of Canadian bush flying as well as the RCAF of future wartime and peacetime achievements.

Franz Johnston and the Canadian War Memorials

In July 1918, Francis Hans Johnston, better known as Frank or Franz, received permission from the military to sketch at the Royal Air Force’s schools in and around Toronto. He had been commissioned for this work, on a part-time basis, by the Canadian War Memorials Fund. The fund had been established by Lord Beaverbrook, the politically influential Canadian businessman, to hire artists to record his country’s war effort. Johnson was a gifted young Toronto painter who would later become famous as a founding member of the Group of Seven, Canada’s most renowned movement in the visual arts.

Johnston, at the time he received the part-time commission, had already flown as a passenger in the two-seater training aircraft, an experience that required considerable nerve. “Flying...is a very fine sport with the exception of the spinning nose dive,” he observed, with perhaps intentional understatement about that death-defying

manoeuvre. He was fascinated by flight as a subject for art, but soon found “it more or less impossible to do the subject justice in spare hours. He successfully requested a two month, full-time contract beginning in late August. In fact, his commission would continue until 14 March 1919, and see him work also at flying training schools at Camp Borden, Leaside, Deseronto, and Long Branch. During this period he produced a total of 71 works on paper and two large paintings in oil for which he received a total payment of \$3000.00. For a commercial artist as Johnston then was, the regular income the war commission provided was essential to make up for his inability to undertake other money-producing work.

Born in Toronto in 1888, Johnston had studied at the Central Technical School under Gustav Hahn and at the Ontario School of Art under William Cruikshank and George Agnew Reid. Further studies in the United States, and a brief working spell in New York, were followed by a return to Toronto and, in 1918, the war commission. In 1920, he became Principal of the Winnipeg School of Art and from 1927 to 1929 taught at the Ontario College of Art. From 1930 to 1940 Johnston ran a summer art school on Georgian Bay. He died in 1949.

The majority of Johnston’s works on paper – from which this exhibit is drawn – utilize a mixture of water-colour, gouache and some pastel. What distinguishes them is their often dazzling colour, and the artist’s obvious delight in the spectacular viewpoints to be had from the air. At the same time, Johnston is at pains to depict his aircraft subjects as accurately as possible, resulting in a certain static model-like quality. Accidents provided an opportunity for dramatic compositions, as in *A Tragic Incident* where an aircraft is depicted being struck by lightning. None of the

extant documentation indicates whether Johnston was given any instructions as to what he should sketch. The fact that his approach varied little over the course of his commission suggests that the Canadian officers of the Canadian War Memorials Fund were well pleased with his efforts.

Three other members of the future Group of Seven received commissions from the Canadian War Memorials Fund. Arthur Lismer sketched and painted naval activity in Halifax Harbour and environs, while Frederick Varley and A.Y. Jackson painted overseas on the Western Front. Johnston’s contribution to the depiction of Canada at war is particularly unique: he was the only artist employed by the Canadian War Memorials Fund to depict the activities of the Royal Air Force either at home or abroad.

Further reading:

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- Molson, Kenneth M. “The RFC/RAF (Canada): Its Squadrons and Their Markings”, *Journal of the Canadian Aviation Historical Society*, Volume 22, No.3 (Fall 1984). A very interesting article for those interested in model making and seeking special insignia.
- Wise, S.F. *Canadian Airmen and the First World War* (Toronto, University of Toronto Press, 1980). Includes the best published academic study of the program.

Canadian War Museum
General Motors Court
330 Sussex Drive, Ottawa, ON K1A 0M8



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