

## Those Magnificent Men and Their Flying Machines: Aerial Reconnaissance in the Alberta Rocky Mountains During the 1920s

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*The early history of aviation in Southern Alberta is highlighted by the activities of No. 2 (Operations) Squadron of the Canadian Air Force. The Alberta air station was originally established in the Bow River valley near Morely, Alberta, in 1920. A more suitable site was found, in 1921, outside of High River. During the next decade, aviators from the High River air station pioneered the operational use of aircraft in western Canada. While the original purpose of the air station was to act as a base for forest fire patrols, High River aviators soon found themselves occupied with tasks varying from aerial photographic surveys of Alberta and Saskatchewan, to civil operations for the Department of Agriculture. The High River Air Station was to remain in operation until March 31, 1931, when air operations were suspended at the request of the Premier of Alberta. Following this the High River air station became a storage place for aircraft until the Second World War, when it was resurrected as an Elementary Flying Training School. The most enduring legacy of the High River air station are the thousands of aerial photographs taken between 1923–1927. These images retain an imprint of settlement and landscape patterns allowing for a unique perspective of conditions in western Canada at the beginning of the century.*

## Introduction

The early history of aviation in southern Alberta is highlighted by the activities of No. 2 (Operations) Squadron of the Canadian Air Force (to become the Royal Canadian Air Force in 1923)(Kostenuk and Griffin 1977:15). The unit was established in 1920 and, during a decade of operational service, played a key forest fire detection role in the eastern slopes region of the Alberta Rocky Mountains (Figure 1). The aviators from No.2 Squadron also carried out an extensive programme of aerial photography and participated in considerable experimental aviation work, before the squadron was disbanded in 1931. The aim of this paper is to review the history of No. 2 Squadron; to emphasize the contributions made by these early aviators; and, to provide insights into a neglected arena of exploration in western Canada.



**Figure 1** Forest protection patrol over the foothills region of the Alberta Rocky Mountains in the fall (source: DND 1926:55).

## Post WWI Aviation

Canadian pilots who participated in World War I did so as Flying Officers in the British air service (Main 1967:297). Canada was

left with little in the way of an air force after the wartime squadrons disbanded and Canadian aviators depended almost entirely upon the use of surplus World War I material until the mid 1920s (DND 1925a:81).

In February 1919, the Overseas Club and Patriotic League in England sent Canada 16 aircraft and \$170,000 worth of equipment in return for Canada's wartime service (Foster 1989:27). This gift was followed by an Imperial Gift of 101 planes, 12 dirigibles, 6 balloons, 19 dismantled hangers, and 300 motor vehicles. Included within this gift were 62 Avro 504s, 12 De Havilland H9s, 12 SE5s, 10 De Havilland D.H.4s, two H16 flying boats, two Bristol fighters, and a snipe (Wise 1980:614). After much discussion as to what to do with this aviation equipment, the Canadian Government set up an Air Board to control military and civil aviation in the summer of 1919 (Foster 1989).

In 1920, the Air Board, in conjunction with the Department of Interior (Forestry Branch), agreed to see whether aircraft could be used for fire detection and forest inventory work in the Dominion Forest Reserves on the eastern (Alberta) slopes of the Rocky Mountains. The Department of Interior was concerned at the havoc being caused by forest fires and hoped that aircraft might add to the surveillance being provided by a network of lookout towers. The Imperial Gift De Havilland D.H.4s were selected as the aircraft most suited for this purpose and arrangements were made to establish an Alberta station.

### **Morley Air Station**

The Alberta air station was originally established in the Bow River valley near Morely, Alberta, along the main CPR line (DND 1924a, 1924b; Hitchins 1972). Squadron Leader G.M. Croil headed up operations and two war surplus canvas hangers were set up in the fall of 1920 (Figure 2). Three D.H.4 aircraft began patrols late in the fire season and discovered numerous fires before operations ceased (Table 1). The air patrols proved so satisfactory that an expansion of the lookout system was abandoned and plans were made for increased aircraft coverage in the following season (Hitchins 1972:26). While the success of the fire patrols ensured expansion of the programme, some skepticism must have remained within the Forest Department. Forest rangers are reported to have periodically set test fires for the aerial patrols to spot throughout the summer of 1921 (Croil 1921).

Despite the success of the fire patrols, it was quickly recognized by the Air Board that the Morley Air Station was located too close to



**Figure 2** The first Alberta air station in the Bow River valley at Morley, Alberta, with Mt. Yamnuska in the background. Established in the fall of 1920, it was soon clear that the station was subject to extreme turbulence and chinook winds making flying very hazardous (source: Ellis 1961:164)

the mountains. Extreme turbulence and prevalent winds made flying hazardous and the Alberta base was moved in 1921 (DND 1925b; Hitchins 1972).

### **High River Air Station**

A more suitable site was found for the Alberta base outside of the town of High River, to the south of Calgary. The northwest quarter of Section 8 in township 19, range 28 west of the 4th meridian, was originally leased (for \$960 year [1920-1922] and for \$1120 year [1922-1924]; Privy Council of Canada 1923) and eventually purchased by the Department of National Defence (for \$10,500; Privy Council of Canada 1924), from Mrs. Marie Alphonsine Eva Robertson of High River, Alberta.

The air station at High River came into being on January 20, 1921, with the arrival of an advance party and five carloads of equipment (Knupp 1982). Little could be done until the canvas air hangars were constructed and, due to winter weather, they were not ready until the first day of April. As the planes arrived dismantled, it re-



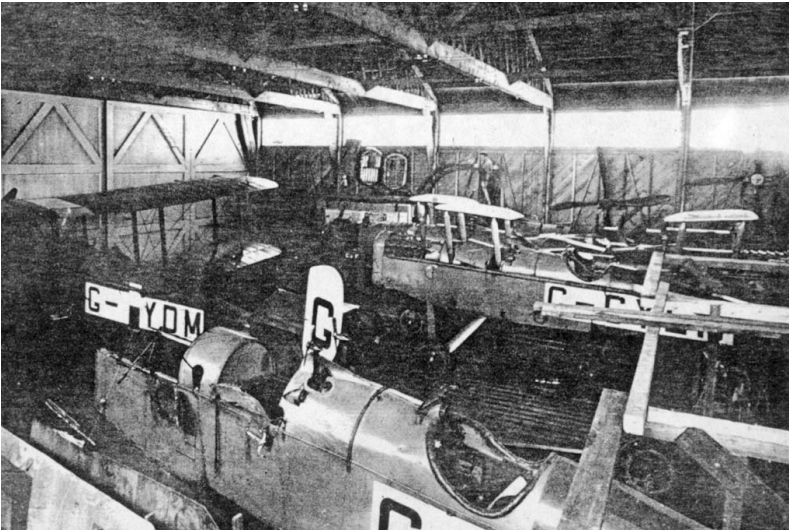
**Table 1** Fire patrol records in the Rocky Mountain forest reserves.

<i>Year</i>	<i>Flying hours</i>	<i>Number of fires</i>	<i>Comments</i>
1920	640	*	
1921	711	44	(Croil 1921)
1922	900	*	
1923	400	*	Wet and snowy weather in the early months of the fire season, and no fire patrols until August. The autumn was dry, however, and patrols were continued until early December (DND 1924:31)
1924	380	12	Fire hazard low during 1924 due to prevalence of snow and wet weather in foothills (DND 1925a:59).
1925	489	14	Fire hazard low due to snow and wet weather in the foothills (DND 1926a:56)
1926	261	3	High fire hazard in April and May, with bad weather later in the summer restricting hazard (DND 1927:50)
1927	193	0	Fire hazard low April to August, with daily patrols not necessary until late October (Hitchins 1962:192). Bad weather and haze from fire in Interior B.C. restricted number of patrols (DND 1928:45)
1928	706 <sup>a</sup>	8	(DND 1929:50)
1929	1300 <sup>a</sup>	43	Bad year for fires. Patrols began in March using aircraft fitted with skis (Hitchin 1972:227)

<sup>a</sup>includes forest lands patrolled in the Peace River District. Total area patrolled in 1928–1929 was more than 1,000,000 hectares (Hutchins 1972: 214)

quired a great deal of hard work to have them ready (Croil 1921). Flying operations began on May 20, 1921 and continued until October 10th, when the station closed for the winter of 1921/22 (Figure 3). While flights were not permitted on Sundays (DND 1923a:39), in that first year of operation, 220 patrols were undertaken by five aircraft, with 44 fires reported (Croil 1921).

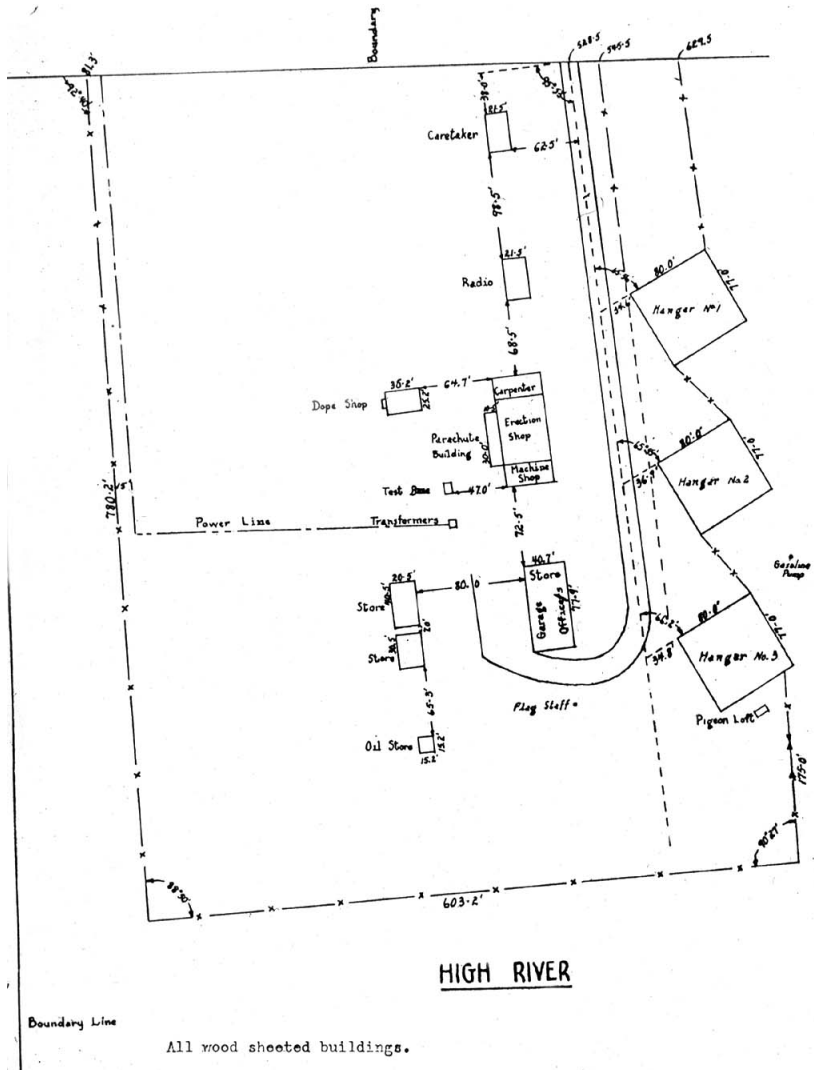
In the years to follow, the High River Air Station gradually expanded both in the size and diversity of its operations. By 1925, the four original canvas hangers had been replaced by three permanent hangers (Knupp 1982:136), and numerous shops, storerooms and



**Figure 3** Planes in service at High River in 1921 were partially disassembled for hanger storage over the winter of 1921/22 (source: Public Archives of Canada PA-52143).

offices had been added to the base (Figures 4 and 5). Winter service operations were commonplace, and focused on such activities as the identification of aviation oils and antifreezes suitable for use on the Canadian prairies in 1922/1923 (Hitchins 1972:108), winter flying procedures, and tests on a ski-equipped D.H.4B in 1923-1924 (Stedman 1963).

Civil aviation operations at the High River Station were equally varied. The air station was the international customs airport and transient American aviators rarely failed to draw attention (Knupp 1972:137). One noteworthy visit occurred in 1925, when the Fox Film corporation used the High River Air Station as a base for the filming of "Pyjamas" starring Oliver Benton (DND 1926a:60). A temporary visit by two planes painted in 6" squares of black and white, to make them show against the Victoria Glacier above Lake Louise (see file No. NA-2097-21, Glenbow Museum), is suggestive of the varied role of the station. Hitchins (1972:154) reports that the Fox Film Corporation did some actual filming of operations at the High River Air Station, although the final repository of this footage has not been located.



**Figure 4** Period map of the High River aerodrome showing main hanger complex and auxiliary buildings

Commercial aviation was also evident at the High River air station. A privately owned Stinson Detroit freighted nitroglycerine to the nearby Turner Valley oils wells in the late 1920s and early 1930s (see file No. NA-2097-44, Glenbow Museum).



**Figure 5** Aerial view of the High River air station in 1927 (source: Glenbow Museum NA-2097-33)

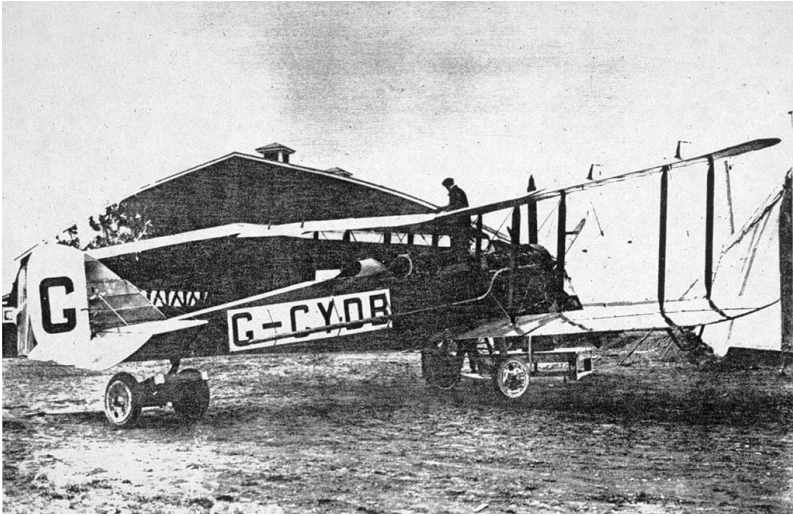
The role of the locally based RCAF Flying Officers was equally diverse. For instance, they acted as test pilots for De Havilland Cerrus Moths prior to their delivery to flying clubs (see file No. NA-2097-44, Glenbow Museum; Neg #RE 16048 Canadian Forces Photographic Unit) and attended official openings of Aero Clubs in Edmonton and Calgary (DND 1929:50).

By 1930 the role of the High River Air Station was changing, partially due to the economic pressures of the Great Depression. Equally significant to the fate of the High River Air Station was the jurisdictional transfer of natural resources to the provinces (Hitchins 1972:256). The provincial government responded by installing lookout towers throughout the Crowsnest and Bow River Forest Districts (Knupp 1982), rendering the fire patrols superfluous. In response, flight operations at the High River Air Station concentrated more and more on flight and transportation testing until 1931.

### Aeroplanes

Flight operations at the High River Air Station were remarkably diverse and were to employ three principal aircraft between 1920 and 1931: De Havilland D.H.4s; Avro 552As; and De Havilland 60 Cerrus Moths.

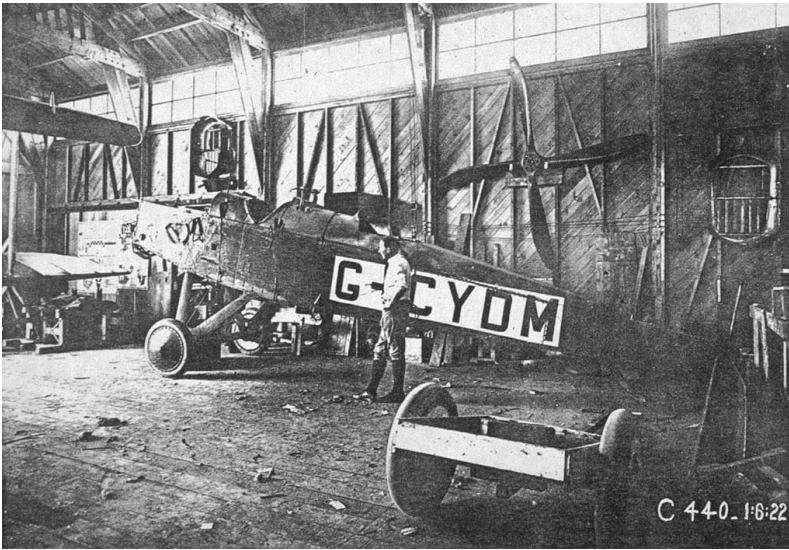
The war surplus D.H. 4s bombers were to serve in various roles (Figures 6-8). Fitted with Rolls-Royce Eagle VIII engines, the D.H.4s had a cruising speed, with the engine throttled, of between 130



**Figure 6** De Havilland 4B at High River, May 12, 1923. This aircraft (G- CYDB) was struck off charge due to general deterioration, December 4, 1924 (source: Public Archives of Canada - PA-52119)



**Figure 7** De Havilland 4 Huck Starter at High River Air station ca. 1926. Automatic starter built on chassis of Model T Ford car (source: Glenbow Museum NA-2097-25 )



**Figure 8** The war surplus D.H.4s required constant maintenance and frequent rebuilds. Pictured is the dismantling of G-CYDM on June 1, 1922. (source: Public Archives of Canada - PA52142).

to 145 kms per hour (DND 1926a:56). During their operational service all underwent modification: some were converted to a D.H.4B configuration, where the fuel tanks were placed up under the wing instead of between pilot and navigator; by 1923, all of the D.H.4s assigned to fire patrol duty were converted to a single seat of D.H.4B configuration (Griffin 1992); and, by 1925, the remaining D.H.4s were used solely for photographic operations. Two D.H.4Bs were still involved in photographic operations in the summer of 1927, focusing on the districts surrounding Lacombe, Alberta, and Saskatoon, Saskatchewan (DND 1928: 45). In December of 1927, the two remaining D.H.4s were dismantled and sent east for disposal (Griffin 1992a).

The first Avro Viper 552As was delivered by rail to the High River Air Station in December, 1924 (Figure 9). The remaining four 552As to see service at High River arrived in the following summer. Smaller, less costly (valued at \$8,450 in 1925), and lighter, these single-seater aeroplanes fitted with Wolseley “Viper” engines (210 h.p.), took over the fire patrol duties in 1925 and 1926 (DND 1926a; 1927). While the Vipers were anticipated to provide an economical alternative to the D.H.4s, they proved to be underpowered and their removal from operational service at High River was welcomed (Griffin 1992b).



**Figure 9** Avro Viper 552A at High River in ca. 1926. Station personnel are hand chain starting the Viper (source: Glenbow Museum NA-2097-17).

The final aircraft to see service at High River was the De Havilland D.H. Cerrus 60 Moth (Figure 10). Arriving at the station in 1928, all the Moths received at High River were assigned to fire patrol duties (Griffin 1992c).

### **Flight Activities**

The original purpose of the High River air station was to act as a base for forest fire patrols. While this operation was to remain the focus of the flying programme for the next ten years, High River aviators soon found themselves occupied in a variety of other tasks. In 1923 this included: 700 hours devoted to fire patrols over Crowsnest and Bow River reserves; 50 hours assigned to the Topographical Survey Branch for photographic work on sectional maps between Edmonton and Calgary; 25 hours assisting the Parks Branch with occasional patrols in the Rocky Mountain Parks; 25 hours assigned to the Reclamation Service for photographic work on various rivers; 20 hours helping the Agriculture Department in its attempt to combat caterpillar pest in the Moose Mountain area; and 20 hours transporting members of the Geodetic Survey from Jasper Park to Jarvis Pass (DND 1923). The latter service is described by Wheeler and Lambart (1923), who were involved with the Alberta-



**Figure 10** De Havilland D.H. Cerrus 60 Moths at High River (source: Canadian Forces Photographic Unit RE-16058).

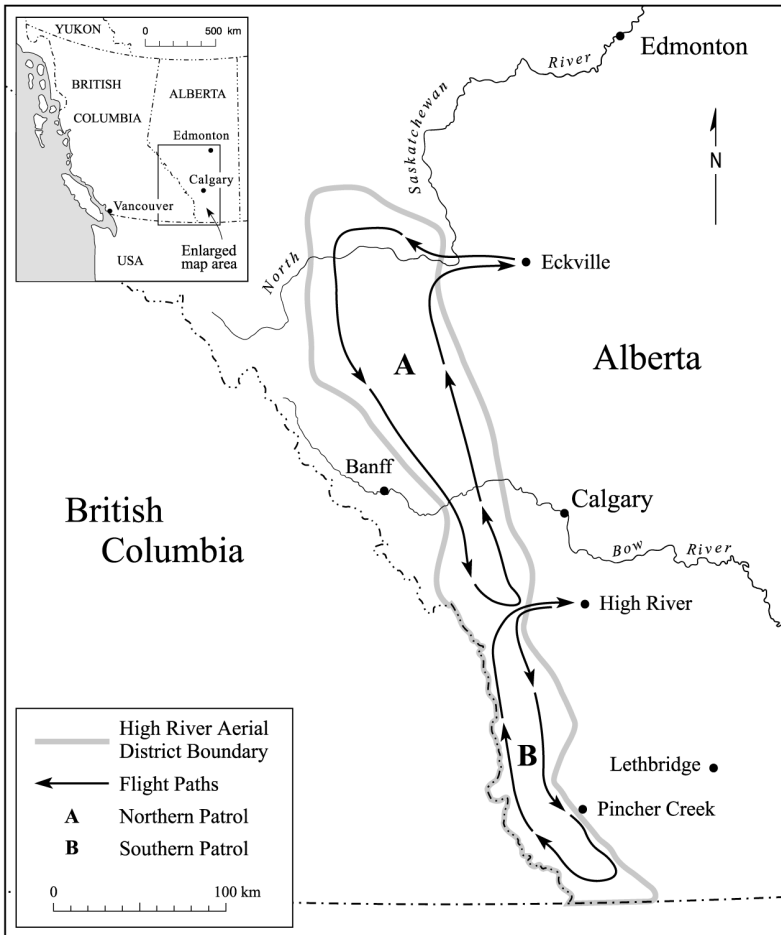
British Columbia Interprovincial Boundary Survey at the time. Both surveyors were quick to recognize the value of mountain reconnaissance by aircraft, stating that:

As a means for mountain reconnaissance the airplane offers exceptional facilities. Given a clear day and the ability to keep to known landmarks, it is to a topographer a study of a living map, the most accurate that can possibly be had. I was enabled to get a clear conception of the country my future surveys would cover, and the nature of the access to them, and in one case was able to obtain information that will prevent a considerable loss of time. (Wheeler and Lambart 1923:152)

### Fire Patrols

Initially, the area patrolled included only the Crowsnest, Bow and Clearwater forest reserves extending from Eckville in the north and to Pincher Creek in the south (Figure 11). The daily procedure during the fire season was for two patrols to leave from High River in the morning, one flying north as far as the Clearwater River and the other south to the international border (Croil 1921). Eventually substations were built at Eckville and Pincher Creek to double the efficiency of the patrols, and enable a return flight in the afternoon





**Figure 11** Fire patrol routes and surveillance boundaries in the Dominion along the eastern slopes of the Alberta Rocky Mountains (1920–1930).

after the planes were refuelled (DND 1925a:61). The northern patrol sub-base was apparently re-located to Rocky Mountain House in 1926 (DND 1927:50). Although occasional patrols were made into Rocky Mountain (Banff National) Park, limited numbers of aircraft and their unsuitability for use in mountains restricted the number of fire patrols. One source of difficulty was the lack of suitable landing sites (DND1925a:61), and there are reports of rapidly changing weather conditions resulting in collisions with tree tops as the pilots sought out safe landing sites (*e.g.*, DND1925a:25).

All the forest patrol aircraft were fitted with “wireless telephones”, capable of transmitting voice communication from any point in the reserve area to the base.

In the event of a fire being observed by the machines, its exact location is first of all determined. A wireless message is then sent off to the air station at High River, giving a description of the fire, stating whether the fire is within the reserve or in the immediate vicinity of the forest boundary. The exact location is in all cases given, so that the headquarters may decide whether or not action should be taken on the report. In the event of headquarters considering action, necessary, the long distance telephone is put in use, and within a quarter of an hour from the time when aerial patrols first sighted the fire, the Forestry Department and the forest supervisor concerned are notified of the exact location, the size, and the probable results, if the fire is not extinguished. In addition to this, the direction of the wind is given, that the Forestry Department may know the direction in which the fire is likely to travel. As soon as this information is received it is only a matter of a couple of hours before a fire fighting party is on its way to the scene of a fire from the nearest point at which access can be obtained. In this way, the fire is attacked before it has a start of twenty-four hours, at the outside. (Croil 1921)

Experimental work at High River, in conjunction with the Royal Canadian Corps of Signals, eventually led to the production of “wireless” sets permitting reliable transmissions over distances of greater than 300 kms (DND 1927:50). This communication was, however, only one-way (aeroplane to base), with the pilot reporting to base every 15 minutes.

In 1928, experimental fire patrols in the Peace River District were started from a temporary base at Grande Prairie (Hitchins 1972:214). This was to prove a fortuitous decision, with seven of the eight fires reported observed in the Peace River District (DND 1929:49; Table 1). This success led to a continuation of the Peace River patrols in 1929. In the course of almost 1300 hours of flying, four fires were detected in the southern reserves and 39 in Peace River District (Table 1).

### Air Surveys

Many Canadian aviators were trained to fly aerial reconnaissance missions during World War I and these exercises gave the pi-

lots an excellent grounding in the use of cameras for aerial photography (Main 1967:297). These skills were put to test in 1923, when trial aerial surveys were initiated at High River using two reconditioned D.H.4s. The success of these operations resulted in extension of the programme and the adoption of aerial methods of mapping on a large scale with the Topographical Survey Branch (DND 1923:40). In 1924, over 23,000 square kilometres were photographed from the High River station (DND 1925a:61). While the majority of these photographs were oblique images, over one third were vertical photographs. The photographs were used by the Topographical Survey Branch to produce revised maps of the Vermilion, Edmonton, Wainwright and Brazeau districts. A large part of the latter had never been adequately surveyed due to the nature of the terrain, and the aerial photographs were to provide results more "complete and accurate than can be got save by the most minute ground surveys, whose expense renders them out of the question, when the large areas to be mapped in Canada are considered" (DND 1925a:61).

While the D.H.4Bs were to serve as reliable photographic platforms for five years (1923-1927), they were not without fault.

It took up to an hour to reach 12,000 feet above ground (14,000 feet above sea level). At this height, mountain turbulence attained a vertical velocity of up to 500 feet per minute and high level winds frequently prevented any progress over the ground while cruising at 80 miles per hour. (Griffin 1992a:8)

The cockpit is too small, making so small an operation as changing magazines an exhausting process. The observer's feet are wedged under the seat and as temperature of 5 and 10 degrees were not uncommon at 12,000 feet (14,000 feet above sea-level) the discomfort was acute. (DND1925a:63)

The cameras themselves added to the discomfort felt by the observer. In order to complete the vertical work, the cameras (with 8" or 12" lenses [DND1926a:56]) protruded through the floor of the observer's cockpit, producing freezing conditions around the photographer's feet and legs (Griffin 1992a:8). Conditions were seemingly little better during the oblique work, when the camera was mounted on a tripod in the observer's cockpit (see NA-4868-43, Glenbow Museum). In this position the camera diverted the slip stream directly into the cockpit, exposing the photographer to a freezing wind (DND 1925a:63).

The photographic work completed using the D.H.4s was dependent upon good team work between the pilot and the photographer:

The pilot devoted his whole attention to holding his altitude and maintaining the aircraft in a horizontal plane while photographs were being taken. To the photographer was left the responsibility of holding the aircraft on the correct line of flight. (DND 1926a:58)

While under normal conditions this operation was found to be comparatively easy (DND 1926a:55), the blind spot caused by the lower wing was so large that directional errors were easily made (DND1925a:63). It is a credit to the collective skill of both pilot and observer that few gaps exist in these photographic flight lines.

### Miscellaneous Operations

While the majority of flight operations completed by No. 2 Squadron were related to the forest patrols and aerial survey services, a number of additional undertakings are recorded in the Department of National Defence annual reports (DND 1923-1929). Particularly noteworthy are two photographic flights requested by the National Park Branch. The first occurred on October 20, 1924, when:

a series of pictures illustrating mountain scenery in the neighbourhood of the new Banff-Windermere highway was taken...The flight was made west from High River, up the course of the Highwood River over the Kananaskis Lakes Mount Assiniboine, thence to the Great Divide and returning down the Bow River Valley past Lake Louise and Banff. (DND 1925a:65)

This remarkable collection of over 100 oblique photographs (October 20, 1924) is archived in the National Air Photo Library, Ottawa (CA114), and provides a unique historical record. Singular examples include: an aerial perspective of Upper Kananaskis Lake in Peter Lougheed Provincial Park (Figure 12), prior to being dammed in 1932 (Oltman, 1976:38); an aerial view of the Victoria Glacier and Lake Louise (Figure 13), showing the chalet being reconstructed following the devastating fire of July 3, 1924 (Whyte and Harmon 1982:37-38); and aerial views of both Banff (Figure 14) and Canmore (Figure 15) in the Bow River valley. A second operational flight, in either 1925 or 1926, was completed for the National Parks Branch to make "moving pictures" of the Banff-Windermere Highway (DND 1926a:60; 1927:53).

In addition to this type of operation, tests were frequently carried out for various government agencies. In 1925, specially treated slides supplied by the Division of Botany, Department of Agricul-



**Figure 12** View towards Upper Kananaskis Lake on October 20, 1924. Note that the lake was not dammed at this time and the water level is at its historical level (source: National Air Photo Library CA-114-6).

ture and the Honorary Advisory Council for Scientific and Industrial Research were exposed high in the atmosphere, in an investigation of the problem of wheat rust disease over the prairie provinces (DND 1926a:60). In 1927, a special flight was organized to photograph the Highwood River, to illustrate conditions along the riverbank during flood conditions (DND 1928:46). Apart from these civil operations, station personnel also assisted with artillery training at nearby Sarcee Camp (DND 1926a:60) and with parachute training beginning in 1925 (DND 1926b:50; see NA-2097-8/11, Glenbow Museum).

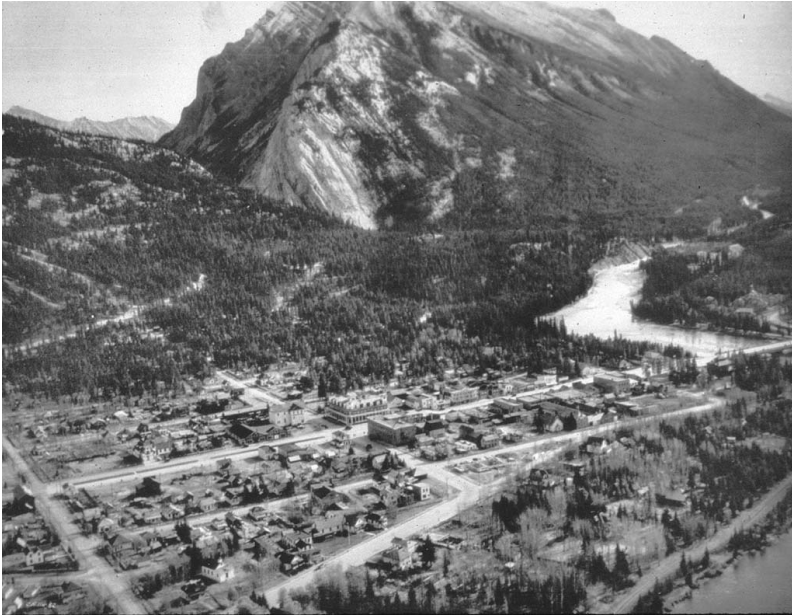
The value of having a local airport was appreciated by a variety of people, with politicians (DND1929:50) and railway officials (DND 1928:46) being quick to use the aircraft for government business. Many farmers understood the value of the fire patrols and willingly lent their fields as landing grounds (DND 1925a:65). Nevertheless, these fields proved less than ideal landing sites and after only two months of stubble landings the wooden propellers in use were rendered worthless (DND 1925a:63). Royalty were also appreciative of the fire patrols (DND 1925a:65):



**Figure 13** View towards the Victoria Glacier and Lake Louise on October 20, 1924. Note the construction around the chalet following a fire earlier in the season (source: National Air Photo Library CA-114-60).

At the time H.R.H. The Prince of Wales visited his ranch near High River (situated about 20 miles south-west of the town) in September 1924, I was attached to the station as pilot carrying out forest-fire patrols over the eastern portion of the Rocky Mountains. ... A day or two after the arrival of H.R.H., the Commanding Officer received a request that the mail for H.R.H. be air-dropped at his ranch. ... I was detailed for this pleasant duty and in due course took off in a D.H.4 with the mail, to which I had attached an RCAF message-bag, with the multi-coloured streamer. On nearing the ranch I descended to about 100 feet and, recognizing H.R.H. standing in an open space near his ranch house, I dropped the mail so that it would land close by. It landed a few feet in front of H.R.H. and I then observed him to walk over and pick it up, and then wave. (Fullerton 1960)

Less appreciative of the daily fire patrols were the owners of illicit stills in the area. Apparently, many stills were dismantled because



**Figure 14** View of Banff townsite and Rundle Mountain, October 20, 1924 (source: National Air Photo Library CA-114-82).

their owners were under the impression that the aircraft were especially detailed to look for them (DND 1925a:65).

### **Summary**

The High River Air Station was to remain in operation until 31 March 1931, when air operations were suspended at the request of the Premier of Alberta. Following this the High River air station became a storage place for aircraft until the Second World War, when it was resurrected as an Elementary Flying Training School (Hitchins 1972:256).

During a decade of service in the 1920s, aviators from the High River air station pioneered the operational use of aircraft in western Canada. Initially working with surplus World War I bombers, they spent hours flying forest protection patrols in the foothills and front ranges of the Alberta Rockies. These flying operations took place under very severe conditions, often in locations where it was difficult to land safely. Rough landings resulted in both crashes and injuries (Figure 16).



**Figure 15** View up the Bow River valley to Cascade Mountain. Note Canmore townsite in the foreground (source: National Air Photo Library CA-114-87).

If no suitable landing place could be found the only thing to do was to “pancake” which, when more definitely explained, seemed to mean to the untutored mind to stop the engine and let her go until she dropped. I believe it means wrecking the machine but a chance of saving your life (Wheeler and Lambart 1923:150).

This contribution has rarely been acknowledged and at least one individual, Flying Officer Captain W.E. Shields, died on fire patrol duties (August 1, 1921 [D.H.4-G-CYBV]).

Perhaps the most enduring legacy of the aviators and personnel of No. 2 (Operations) Squadron, High River air station, Alberta, are the thousands of aerial photographs taken between 1923-1927. These images retain an imprint of settlement and landscape patterns that permits present day researchers a unique perspective of conditions in western Canada at the beginning of this century (Figure 17).





**Figure 16** Second crash of plane at High River. On May 31, 1921, May F/O A. Carter, with crewman Beattie was landing G-CYBW at High River and, on the approach, the pilot was side slipping off excess height, but failed to level out before striking the ground. The left wing collapsed and the aircraft broke up on contact. The pilot and crewman were seriously injured and the D.H.4 was damaged beyond repair (source: Glenbow Museum NA-2097-56)

### **Acknowledgements**

This paper was seeded by the chance discovery of an oblique air photograph in box at the University of Saskatchewan. A decade of archival searching and the help of numerous individuals produced the details described herein. I wish to acknowledge the assistance provided by John Barton of the National Aviation Museum, Ottawa; Dr. C.A. Christie at the Directorate of History, National Defence Headquarters, Ottawa; Major F.E. Jonker at the Canadian Forces Photographic Unit, Canadian Forces Base Ottawa; Susan Kooyman and Lynette Walton at the Glenbow Museum, Calgary; and T.A. Judge of the Canadian Aviation Historical Society, Willowdale. I am particularly indebted to John A. Griffin of Ottawa, who, in 1992, generously alerted me to several publications and provided access to his unpublished material on the service of D.H.4s, Avro 552As, and D.H.60s at High River. The illustrations included with the



**Figure 17** The Devil's Head, Alberta Rocky Mountains (source: DND 1926a:57).

paper reflect the combined talents of Keith Bigelow, Cartographic Services, Department of Geography, University of Saskatchewan; and Ole Heggen and Ken Josephson, Technical and Cartographic Services, Department of Geography, University of Victoria.

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