

ARTICLES

Early Aviation Weather Services at Edmonton

Reminiscing about Prewar, Wartime and Postwar Developments 1938-1950

by George W. Robertson¹

Morley Thomas's Books

Morley Thomas has written two excellent books both of which touch on this matter. The first one "Forecasting for Flying" was published in 1996 and covers aviation meteorology for all of Canada for the period 1918-1939. The second book, which I received just a month ago called "Metmen in Wartime" covers the period from 1939 to 1945. After reviewing these two books I wonder why I am here. Morley should be up here in my place.

Anyway, Morley's approach in his literary works has been to research the inside stories and facts; mine is going to be reminiscing about the experiences and activities of a field operator as I remember the facts some 50 to 60 years later. If there are any discrepancies between what Morley has written and what I say it's probably due to my fading memory.

Maclean's - 1937

As far as I'm concerned it all started back in the summer of 1937. I was still a Junior at the University of Alberta and it was at the height of the depression. An article in Maclean's Magazine proclaimed the intention of the Canadian Government to start a Trans-Canada air service (TCA) involving emergency landing fields every 100 or so miles across the country equipped with radio range stations and a few centres equipped with full aviation services including radio communications and weather services.

The weather services bit caught my eye. Two of my professors at U. of A. had talked a bit about meteorology, Dr. Ted Gowan was interested in climatic change and the receding of glaciers, particularly the Columbia Ice Fields. He was interested also in the measurement of ultra-violet solar radiation and had continuous records for some period of time. Prof. Nichols spent some time taking temperature readings by aircraft over the city and told weird stories about chinook conditions at 1000 ft. over the city when the surface temperature was near zero to -10 degrees F. To make a long story short, the interest that these professors had instilled in me, together with the fact I was quite weather conscious having been raised on a farm and having experienced the worst drought to hit the prairies in modern times, I decided that I wanted to become a weather man.

Salary, also, had a bit to do with this decision. Graduate electrical engineers at the time were being offered \$80 per

month by Canadian General Electric in Toronto or Peterborough; and \$90 per month by Calgary Power. The Meteorological Service of Canada (MSC) was offering \$135 per month for graduates in mathematics and physics. I was hoping to graduate in this field in the spring of 1938 so I applied for a job as a Meteorological Assistant Gr.3 at the Edmonton Airport.

The need was great and the MSC couldn't wait for me to graduate. They found someone else but they offered me a job as a Meteorological Assistant Gr. 2 at a salary of \$110 per month providing I could start work immediately. After weighing all the factors and considering the difficulty of getting jobs during the depression, I accepted their offer.

My Career Starts

So I started work on February 4th, 1938 before graduating. The Edmonton Weather Office was in No.1 hangar, the only one at that time, at the Municipal Airport. The office was on the top floor of the tower. Immediately below was the Radio Range staff and below them space was reserved for the future TCA Dispatch office.

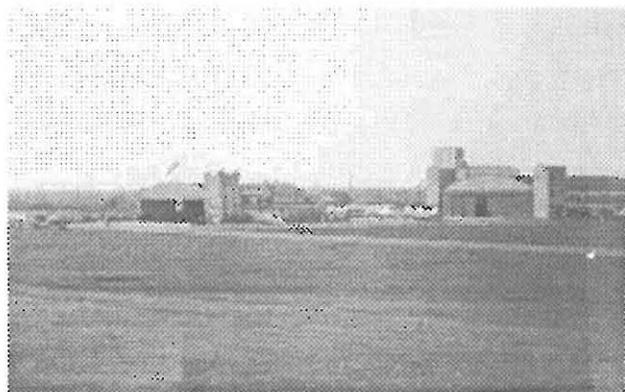


Fig. 1 - Hangars #1 (left) & #2 (right) at the Edmonton Municipal Airport. GWR/39/04/19

Staff consisted of the Officer-in-Charge, Mr. Vanderburg (Van), and one other weather observer, Mr. Brinkman (Brink). The equipment consisted of a mercury barometer, an aneroid barograph, the recorder for the wind equipment mounted on a tower on top of the building, and a recorder for Dr. Gowan's ultra-violet radiation measurements.

¹Based on a presentation to the 38th Annual Convention of the Canadian Aviation Historical Society, 25-27 May 2001 at Environment Canada Headquarters, Toronto, Canada.



Figure 2

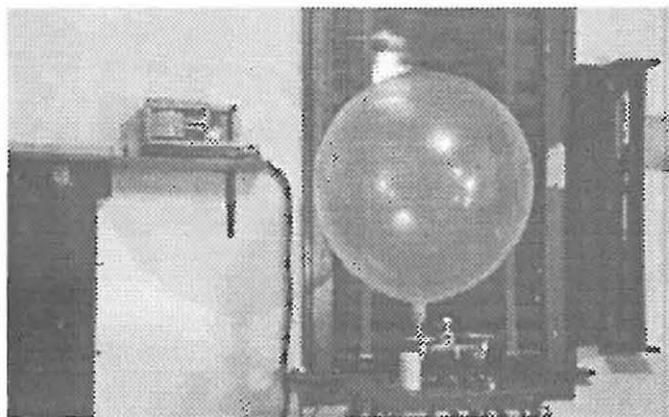


Figure 3

In the weather site some 100 ft east of the hangar there was a Stevenson Screen with maximum and minimum thermometers, wet and dry bulb thermometers, recording instruments for temperature and humidity, and a rain gauge. There was also hydrogen and equipment for filling and following balloons for measuring upper winds and low cloud ceilings.

Observations were taken hourly and these were sent via teletype to the main line teletype office in Lethbridge. With my arrival the 3-man staff could cover hourly observations for about 16 hours per day, 7 days a week.

It must be remembered we had no computers, no weather radar, no weather satellites, no internet, no cellular phones, and no television. Our only form of observation was eyeballing the weather elements and a few ground-based instruments. Our only form of communication was via telephone, telegraph, and teletype. We had to learn to operate the teletype at 40 words per minute. Four stations were on the teletype circuit: Edmonton (XD). Penhold (QF), Calgary (YC), and Lethbridge (QL). Lethbridge was relay point for all teletype messages and weather reports to and from the transcontinental air route between Winnipeg and Vancouver.



Figure 4

Figures. 2,3, & 4, - Scenes in the Edmonton Meteorological Office. GWR/39/12/05.

Shortly after my arrival at the Edmonton Weather Office a teletype operator, Charlie Hustwick, joined the staff with the understanding that he had to learn weather observing and take observations like the rest of us. After his brief training period the staff of four could now take hourly weather observations 24 hours per day for 7 days a week, synoptic observations every 6 hours, and upper wind observations with balloons every 6 hours. We were now nearly ready to provide TCA with weather briefing service for the feeder route from Edmonton to Calgary and Lethbridge.

Airplane Observations (APOBS)

About mid-summer 1938 Gerry Gill joined the staff as an upper air expert. His job was to organize and conduct airplane observations. Edmonton was the third station in Canada at which such observations were taken regularly: the other two being Toronto and a station in Newfoundland. Gerry taught me how to prepare the recording instruments and mount them on the aircraft struts. When the flight

returned, temperature, pressure, and humidity data were scaled off and coded for transmission on the teletype circuit. Flights were made at daybreak and usually reached about 10,000 ft but on occasion the light aircraft used could be pushed to 12,000 ft.

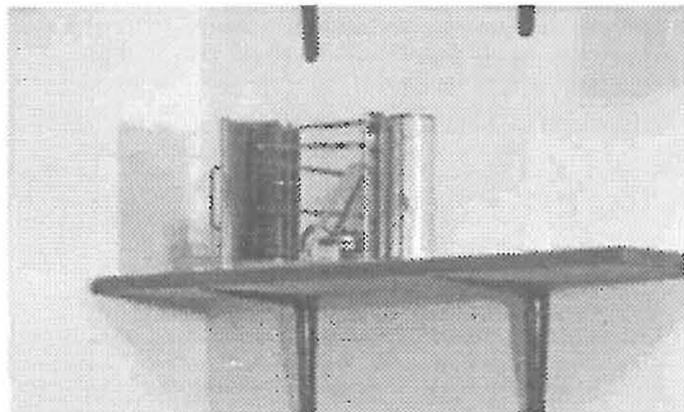


Fig. 5 - Meteorograph for APOB flight. Case is on floor below barometer in Fig. 4 GWR/39/12/05.

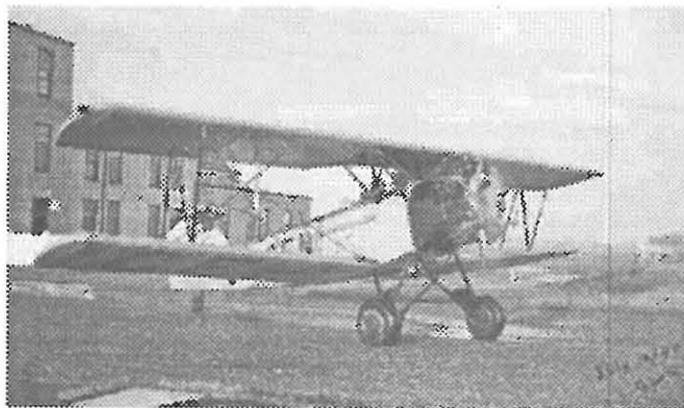


Figure 6. - APOB plane ready for take-off. Meteorograph is mounted on struts on right hand side of plane. Large red-reading mercury wet and dry bulb thermometers are mounted on struts on left hand side. GWR/40/07/12.

TCA Starts Service

In March 1938 TCA started flying the transcontinental route from Winnipeg to Vancouver and it was only a matter of time until the feeder route from Edmonton to Lethbridge would be opened. However, there was the matter of providing facilities at the Edmonton terminal which did not have a fully qualified meteorologist (forecaster).

This was rectified in August when Vanderburg was moved to Winnipeg and Dr. Tom How, a meteorologist, was assigned to the Edmonton Office as Officer-in-Charge. The staff now consisted of a meteorologist, a meteorological assistant Grade 2, a weather observer, and a teletype operator. Gerry Gill left shortly after How arrived and How and I looked after the APOB flights.

Occasionally, when the radio range operator had to visit the transmitter or help with range calibrations, the

meteorological staff kept an eye on the radio operation downstairs and made the routine hourly-weather broadcast.

One of the few perks we had in our job was the opportunity for airplane rides. Jack Hunter occasionally visited Edmonton in the Department of Transport (DOT) plane, CF-CCT, for the purpose of calibrating the radio range station. This involved doing a number of passes around the range transmitter with CF-CCT to check the bearing of the null points between the A and N sectors. On one occasion Jack was in the weather office checking the weather before such a flight. During our conversation I made the remark that I had never flown in a plane other than small single engine Moth or Fleet aircraft. Immediately Jack invited me to accompany him on his calibration flight next afternoon. As it was my day off, I accepted.

Next day I made a flight I will never forget. It was a sunny afternoon - a perfect day for sight seeing. I was in a passenger seat behind Jack and his co-pilot and had only a side view. The flight was rather low and quite bumpy and the sharp turns and steep banks he made in connection with the calibration exercise upset my stomach. There were no facilities for air sickness on the plane. To make a long story short, after we landed I spent the rest of the afternoon and evening scrubbing out CCT.

TCA Route Edmonton to Lethbridge Inaugurated

Finally by March 1939 DOT had all airways facilities completed on the feeder route from Lethbridge to Edmonton. This included emergency landing fields, radio range stations, and weather reporting and briefing facilities.

But one item was overlooked when TCA made their inaugural flight on this route on the evening of April 1st from Edmonton. All the airline dignitaries as well as the Edmonton mayor, other politicians, and the press were on hand for the great event. All went well and Flight #10-1 left on schedule. When the plane disappeared from sight the dignitaries and press all went down town to celebrate. Ten minutes later TCA Flight #10 returned, landed and pulled up to the hanger. A mechanic ran out fastened down the hatch to the baggage compartment and away the flight went again. The Mayor of Calgary and other dignitaries never did find out why they had to wait an extra half hour for flight #10 from Edmonton.

Assignment to Calgary

A few weeks after this incident I received word from MSC headquarters that I was to spend three weeks in Calgary to relieve Clarence Milgate who was being posted to Edmonton for a short spell for personnel appraisal purposes. Later I found out that I was also being appraised in a new environment at Calgary.

The assignment in Calgary was an interesting one. The Met staff consisted of two members: Capt. Bromley, a former navy man, and the meteorological assistant Gr. 2 with

whom I had been exchanged. Calgary was not considered a TCA terminal, only a brief stop on the feeder line from Lethbridge to Edmonton. It was not a busy airport and the two Met staff members worked two shifts: daytime and evening. The observation program was about the same as in Edmonton excepting that there were no airplane observations. TCA made two stops per day: one in the morning enroute to Edmonton and the other in the evening enroute to Lethbridge.

We had a lot of free time on their hands. I took the opportunity to prepare synoptic charts of weather conditions in western Canada; an exercise that Tom How had inaugurated at Edmonton. We were not allowed to make our own forecasts from these charts as this was the responsibility of the meteorologists at the District Aviation Forecasting Offices (DAFO's) at Winnipeg and Vancouver. Nevertheless the charts were convenient for briefing purposes and the TCA pilots appeared to appreciate them when they checked in for a briefing on their short stopovers in Calgary. When my three weeks were up I returned to Edmonton and Milgate returned to Calgary.

During the summer of 1939 a couple of changes took place in the technical aspects of weather observing and reporting. By international agreement, barometric pressure, which up to this time was measured and reported in inches of mercury, was replaced by the millibar, a unit of pressure in the metric scale. The six-hourly synoptic weather reports had been coded by means of words to facilitate the transmission of weather reports by telegraph and wireless. Now that there was a vast network of teletype stations connecting airports and weather offices throughout Canada and the USA, this word code was replaced by a numeric code. Each weather report consisted of a number of groups of 5 digits each. Each group referred to a given weather element: the first group identified the station and time, the second group gave the barometric pressure and temperature; the third group the wind direction and speed; and so on for the current weather type, cloud cover, precipitation type and amount and other elements. With a little practice the new numeric code was easier to decode than the old word code.

War Declared on Germany

Then on September, 10, 1939 Canada declared war on Germany. Weather information became classified and was no longer available to the media or the public. All reports that were transmitted by radio telegraphy had to be ciphered before transmission. The new numeric synoptic weather code lent itself readily for ciphering.

To encipher the weather reports the originator added secret numbers to the numeric synoptic code. At the receiving end the weather reports were deciphered by subtracting the same numbers. A code book was provided to all observing stations responsible for enciphering and a similar code book was available at weather offices that made official use of the reports.

The BCATP

It was soon realized that the war effort would require a large number of airmen: pilots, navigators, air observers, air gunners, and air bombers. By December the governments of Canada, Britain, Australia, and New Zealand had formulated an air training plan known as the British Commonwealth Air Training Plan (BCATP). On December 17, 1939, Canada and Britain signed the plan which basically was to provide training for air crew from the Commonwealth Nations on Canadian soil. Australia and New Zealand signed the agreement a few weeks later.

Earlier the Canadian Government had considered the meteorological requirements of civilian aviation, the airforce, the navy, and the army. After much discussion it was decided, for the sake of economy and to avoid duplication of services, that Canada would have only one Meteorological Service and that would be a civilian Division under the Air Services Branch of the Department of Transport (Canada).

No. 2 AOS, Edmonton

Eight months later, in August 1940, No. 2 Air Observer School (AOS) was opened at the Edmonton Municipal Airport and I was transferred from the Edmonton Aviation Weather Office to the Meteorological Section at the AOS. No. 1 AOS at Malton had been opened in May 1940. I was sent there for three weeks to work with Fred Turnbull and Fred Patterson and to observe how the Meteorological Section at an AOS functioned.

The Section had two main responsibilities: to instruct the enlisted students in practical aviation meteorology and to brief the civilian pilots and enlisted air crew trainees on the local weather condition for doing their flying exercises. Although I had finally graduated with a B.Sc. in mathematics and physics, I was still only an Assistant Gr. 2 and not qualified to prepare forecasts. Furthermore, the aviation forecasting office Edmonton would not open for several months. It was considered necessary that a full fledged meteorologist should be at the School so a number of meteorologists Gr.1 were sent, in turn, to provide briefing services. These included Fred Kelly, Syd Buckler, and Allin Jackson.

Meteorological training was undertaken by myself and three MetMen. These MetMen were university graduates with specialization in mathematics and physics and had been given a 3-month intensive training course in elementary meteorology at MSC HQ in Toronto.

Kelly and Buckler went elsewhere but Jackson remained in Edmonton. He was at the AOS for only a short time when he was moved over to the Edmonton Meteorological Office to assist Tom How with the task of organizing the Edmonton aviation forecasting office.

By this time the DAFO at Lethbridge was operational and with two meteorologists at the Edmonton Main Meteorological Office as backup it was now considered that the staff at the AOS Meteorological Office could manage with only MetMen. I was appointed Officer-in-Charge of the AOS Meteorological Office and at last promoted to Meteorological Assistant Gr. 3 with the enormous annual salary of \$1620. The staff was periodically increased as the program at the School developed and by August 1941 consisted of five civilians: Denny Ross, Dick MacLean, Thorleif Fostvedt, Vic Adams and myself, and a supporting staff of five airmen.

Each class at the School consisted of about 25 airmen trainees. They received, among other courses, 32 hours of lectures in aviation meteorology delivered over a period of 22 weeks by the MetMen. Each MetMan lectured to two classes per day. He taught the same classes throughout the 22 weeks of their training. Each class would attend ground school for half a day and fly during the other half.

Although each MetMan lectured only two hours per day he had many other duties for the rest of the day. He had to prepare lecture material; tests had to be prepared and marked; surface and upper air charts had to be prepared every three hours; and briefings for training flights prepared and delivered. There were 25 3-hour flights per day with some night flying for astro-navigation training so the staff was kept quite busy.

Supplementary Observations

Even though the training flights were short, providing weather information in all directions around Edmonton was tricky. To the north and west were hills; to the southwest the mountains; to the south increasing land elevation; and in the east quadrant, the prairie. To make matters worse there were only two aviation weather stations reporting hourly in the area: Edmonton and Penhold (Red Deer). Often morning flights were sent out with little knowledge of the weather in the area: there could be extensive fog patches and/or areas of low cloud which didn't show up with the meagre observations available to us.

Wop May, the manager of the Civilian company responsible for flying the training planes came up with a brilliant idea to solve this problem. Every morning the Alberta Government Telephone AGT system made a line and equipment check by calling their operators in villages surrounding Edmonton. May and I met with the manager of the AGT, and worked out a program whereby the telephone operators reported the weather as they saw it on these early morning check calls. Some eight or ten operators around Edmonton within a hundred-mile radius were enlisted for this service and in time they became very proficient observers and proud of their contribution to the war effort.

Pearl Harbour

Meanwhile over at the Aviation Weather Office business was booming. As an indication of the airport activity, the newly established Control Tower handled an average of 800 flights per day in August 1941.

The Japanese bombed Pearl Harbour on December 7, 1941. Canada declared war on Japan immediately and the US and Britain declared war the next day. A couple of months earlier, Germany, Italy and Japan had signed a "Three-Power-Pact" pledging mutual assistance to each other. Therefore, the US declaration of war on Japan essentially brought them into conflict with Germany and Italy. In retaliation, Germany and Italy declared war on the US on December 11, 1941. These actions increased concerns about security in Northern Canada. Furthermore the USA needed an all-weather route to Alaska and the Pacific war theatre, safe from surprise naval and air attacks.

Both of these contributed to increasing air traffic on the route from Edmonton to Alaska via Whitehorse and from Edmonton into the Northwest Territories (NWT). Consequently the demand for weather services and information increased rapidly as northern flying increased.

The Northwest Staging Route

These developments led to plans to speed completion of the Northwest Staging Route from Edmonton to Alaska which the US Army Air Force (USAAF) could use for ferrying military aircraft to the Pacific war theatre as well as to the USSR. A Mackenzie Route from Edmonton to Norman Wells was also in the plans. This was needed to develop the oil field at Norman Wells which would supply fuel for the Northwest Staging Route. A pipeline was to be built from Norman Wells across the Mackenzie Mountains to a refinery at Whitehorse.

I remember the occasion when the first flying fortress landed at Edmonton. The pilot taxied up to No. 2 Hangar, locked the left wheel and made a sharp u-turn. The soft tarmac couldn't take it. The left wheel augured its way through the thin surface cover and down into the wet clay beneath. The crew spent an extra unscheduled stay in Edmonton.

Edmonton Aviation Forecasting Office Opened

By the summer of 1942 plans for a forecasting office at Edmonton were completed. This new office was opened for operation in No. 2 Hangar. The original staff of meteorologists consisted of Tom How, Allin Jackson, Don Curie, Stu Dewar and Al Gibb all of whom stayed on until after the war. Meteorologists Harry Tucker and Carl Mushkat were also stationed at the Edmonton office for a short period in 1942 but moved on to similar duties in other parts of the country.

An Airport Administration Building was now badly needed and one was rushed to completion and opened on October 21, 1942. Among other airport facilities, this housed the DOT offices, included the Radio Range staff, Control Tower, and the recently established aviation forecasting office. (For unknown reasons the Edmonton office was never classified as a DAFO).

The newly opened Edmonton Office provided aviation forecasts for the Northwest Staging Route from Edmonton to Alaska; for the Mackenzie route from Edmonton to Norman Wells; to the Arctic Coast when needed; and for the CANOL Route from Norman Wells across the Mackenzie Mountains to Whitehorse. Airlines using these routes, besides the RCAF and the USAAF, included, among others, Canadian Pacific Airlines, Pan American Airlines, and Alaska Airlines.

Weather Services along the Staging Route

In the meantime airports or emergency landing strips with radio range stations, radio communication links, and aviation weather observing and briefing services were built along the Northwest Staging Route at Grande Prairie, Fort St. John, Fort Nelson, Watson Lake, and Whitehorse. The meteorological services at each of these stations were provided by a MetMan and two meteorological assistants Gr. 2.

Along the Mackenzie Route airports or emergency landing strips were built at Ft. McMurray, Ft. Smith, Ft. Simpson, Ft. Norman, and Norman Wells. The Royal Canadian Corps of Signals (RCCS) provided synoptic weather observations every six hours as they had done for many years before the war. The MSC didn't have the staff to man these points so the USAAF provided staff for briefing and taking hourly observations.

By June 1942 air traffic along the Northwest Staging Route became very heavy due to the ferrying of military aircraft from Great Falls to Alaska via Edmonton. The USAAF found it necessary and advantageous to have their own military forecasters at offices established at Lethbridge, Calgary, Edmonton, Grande Prairie, Fort St. John, Fort Nelson, Watson Lake, and Whitehorse with links to the Canadian Offices via teletype. Another forecast office was established at Norman Wells to service air operations along the CANOL and Mackenzie Routes.

As air traffic continued to increase it became necessary to build additional radio range stations between those already existing along the route. By 1943 these included sites at Snag, Aishihik, Teslin, Smith River, and Beaton River. The MSC provided weather observers at each site so that hourly and synoptic weather observations could be taken around the clock. There was still a need by the USAAF for off-airline stations for which the Canadian Government couldn't provide staff so the US Government was given permission to establish weather stations as needed. By 1944 there were some 25 USAAF observing stations servicing the Northwest Staging Route and the CANOL

Route.

Upper Air Observations Increased

Upper air observations had now increased manifold. APOBS were discontinued during 1941 and were replaced by radiosonde observations: small radio transmitters were carried aloft by hydrogen filled balloons and radioed back to ground base the measurements of pressure, temperature, and humidity. Canada equipped several of its observing stations with such facilities. The USAAF needed a denser network of stations than the MSC could supply so they provided a number of their own stations in Canada with radiosonde equipment. By 1944 there were some seven radiosonde stations in Western Canada making ascents every 12 hours.

Whitehorse Aviation Forecasting Office

In the spring of 1944 the MSC finally had sufficient staff to man a forecasting office in Whitehorse. This was staffed by meteorologists George Legg, Clarence Thompson, Ken Harry and Burn Lowe. They were able to provide 24-hour service and took over some of the responsibilities of the Edmonton Office, particularly the forecasts for the CANOL Route and the northern half of the Staging Route.

Namao Airport Built

Another problem that had to be overcome was overcrowding at the Edmonton Municipal Airport. In 1943 Canada gave authority for the US to build a new airport at Namao. This was completed in 1945 and the USAAF moved all their flying and ferrying operations, including meteorological services, to this new airport some 15 km north of Edmonton. At the time it was the largest in North America and the main runway, 14 000 ft long, was the longest in the world. At one time in later years this runway was considered as a 3rd alternative for landing the space shuttle.

As an indication of the amount of traffic that moved northward along the Staging Route, on August 2, 1945 some 800 B-29 flying fortresses with fighter support bombed Tokyo in a single day.

Back at # 2 AOS

Back at the AOS where I was still working things were operating smoothly. But there was one problem that bothered a number of us involved in the BCATP.

There were a number of Meteorological Assistants who had been hired before the war and who had never had any formal training in meteorology. Like myself, the others had been assigned to various schools in the BCATP. We had been clamouring for some time to be given the training that was given to the wartime MetMen but we all had been repeatedly given the same story that we could not be spared from our work and we were assured of continuing work after the war. Because of the number of MetMen who had been trained and were now getting valuable experience at military training schools, we pre-war

assistants were not too sure of our future.

By late 1943, the MSC was catching up with the training of new MetMen and meteorologists. Finally, we meteorological assistants were given the opportunity for training in Toronto. One catch was that we had to pay our own travel and accommodation expenses. A number of us took the opportunity and spent three months on a so-called short course. Following this, some of us were offered an additional three months on the advanced meteorological course which was necessary if we wanted to become meteorologists (forecasters).

Finally, a Full-Fledged Meteorologist

Following this 6-month stint in Toronto, I was posted to the forecasting office at Edmonton where I joined How's group as a full fledged meteorologist forecaster at a respectable annual salary of \$3600. It was April, 1944, just in time to get into the swirl of activity created by the USAAF undertakings along the Northwest Staging Route and the Mackenzie Route.

Those six months training in Toronto were considered as part of the M.A. course in meteorology at the University of Toronto. To complete the course and receive the degree it was necessary to write two U. of T. examinations: one in mathematical statistics and the other in differential equations. I finally wrote these and received the coveted M.A. degree in Physics (Meteorology) in 1948.

Japanese Balloons Bombard North America

Shortly after arriving at the Edmonton office someone returning from a flight to Whitehorse brought back a curious structure which had been found near the Staging Route. It was a bamboo hoop about 8 ft. in diameter. This hoop had obviously carried several small packages of material and shrouds were still attached. After much study it was concluded that it was of Japanese origin and had been carried by a balloon to North America. The payload was incendiary bombs which had time- and pressure-release mechanisms. The hoop also carried several small sand bags as ballast which were released by a pressure sensitive mechanism when the balloon was too low. How many balloons were launched and how many arrived over North America is unknown but no damage or fires were ever reported.

Familiarization Flights

As a forecaster it was advantageous to have first-hand knowledge of the terrain along the routes and around the terminals for which we were responsible. We were given the opportunity to take familiarization trips on commercial, RCAF, and rarely on USAAF flights in our free time and when space was available. In the next six months I covered all the routes and terminals for which we were responsible, including those to Whitehorse, Norman Wells, Winnipeg via Saskatoon, Prince Rupert via Prince George, and Vancouver via Calgary.

Peace in Europe

During the remainder of 1944 and the early part of 1945 the war effort by the allies progressed well. Italy had surrendered in September 1943 and during 1944 the allies brought the rest of the Axis to their knees. Hitler was reported dead on May 1; Berlin surrendered on May 2; and on May 8, 1945 the surrender of Germany was ratified in Berlin.

The Final Push in the Pacific

The allies now threw all their efforts into the Pacific war theatre. The USAAF increased traffic along the Northwest Staging Route.

Canada accepted a role in the forthcoming invasion of Japan but they had to supply their own meteorologists. A call was sent out for recruits and I volunteered and was accepted with the rank of Flight Lieutenant. I had orders to report to Toronto for Officer Training early in August but before I could leave Edmonton a wire was received postponing my trip to Toronto until further notice, which was never received.

Japan Sues for Peace

On July 16, 1945 the US tested an experimental A-bomb in the New Mexico Desert. A few weeks later 800 B-29 flying fortresses attacked Tokyo. On August 6 the US dropped an A-bomb on Hiroshima and three days later one was dropped on Nagasaki. The next day Japan sued for peace and on August 15, 1945 Japan accepted the allies' peace terms but it was not until September 2, 1945 that Japan formally signed a peace treaty.

Following the signing of the peace treaty with Japan, the USAAF activities along the Northwest Staging Route and the Mackenzie Route wound down rapidly. The AOS at Edmonton had closed more than a year earlier in July 1944 shortly after D-Day in June. As the USAAF ceased operations in Canada they abandoned the many satellite weather stations they had established. The MSC took over the operation of the forecasting and briefing office at Norman Wells for a short time. The Namao Airport was turned over to the RCAF.

Nevertheless the demand for aviation forecasts at Edmonton continued at a high pace. TCA inaugurated a route from Winnipeg to Vancouver via Saskatoon and Edmonton. Northern flying continued as the Canadians took over bases left by the Americans. Several wartime pilots applied their flying skills and northern experience to form private companies which undertook charter flying and freighting into areas north of Edmonton and into the Northwest Territories. The newly booming oil industry in Alberta also demanded weather services both from the aviation forecasters and a newly established public weather service.

Public Weather Office

Changes began to take place in the Edmonton office. Restrictions were lifted on the provision of weather services and the public, agriculture, and industry began clamouring for special services. Following the disbanding of military operations there were now sufficient meteorologists to undertake public weather forecasting on a routine basis at the aviation forecasting offices. The Edmonton office was soon upgraded with the addition of four more meteorologists: Wilbur Sly, Bill Markham, Don Storr, and Alf Ingal. There were now two meteorologists on each shift: one with aviation responsibilities and the other with public weather responsibilities.

Staff changes were also made. Tom How was transferred to MSC headquarters in Toronto and replaced by Dean Smith from the Lethbridge office which was closed when TCA changed its routing from Winnipeg to Vancouver via Calgary instead of Lethbridge. Al Jackson was transferred to Vancouver and replaced by Clarence Thompson, also from the Lethbridge Office.

Near the end of the decade covered by this study, staffing at the combined aviation and public weather office at Edmonton was such that there was now a little time for some individual research. Up until this time research was undertaken mainly at MSC headquarters in Toronto.

Winter Ice Fog at the Edmonton Municipal Airport

During my stint at the AOS and more recently at the Edmonton forecasting office I experienced the frustration of forecasting winter ice fog at the Municipal Airport. The winter of 1949-50 was exceptionally cold and ice fog was a problem. Noting the steam plumes rising from chimneys on cold, calm mornings, it appeared obvious that the source of moisture for ice fogs might be the combustion of natural gas, the main heating fuel in the city.

Upon investigation it was found that visibility at the airport was related to temperature, wind direction, and wind speed. At that time the heaviest populated part of the city was in the SE quadrant from the airport and low visibility was associated with southerly winds when the temperature was below -20° F. Furthermore, data from Northwest Utilities, which supplied natural gas to Edmonton, indicated that the consumption of gas increased almost linearly with decreasing temperature. So the cause of winter ice fogs was resolved and their forecasting put on a more objective basis.

Some years later in Ottawa, while chatting with Jeff Williams, one-time Regional Director of Air Services in Edmonton, he informed me that my ice-fog study at Edmonton had been partly responsible for the location of the new Edmonton International Airport some distance south of the city limits.

In 1950 MSC opened a Central Weather Analysis Office in

Ottawa and I was one of the fortunate few to be posted there in October. This brought my career as an aviation forecaster to an abrupt end.

Acknowledgement

I wish to thank Morley Thomas for suggesting this topic as a presentation to the Canadian Aviation Historical Society, for his encouragement in preparing it for publication, and for his review of the manuscript and suggestions.

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