A Profile of Operational Unit 34
Pennfield, NB

By Major (Ret'd) G.D. Madigan

Disclaimer

The conclusions and opinions expressed in this document are those of the author cultivated in the freedom of expression and of an academic environment.

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Introduction

Many of us have a "normal" routine. The spring and summer of 2015 was anything but the "normal" for me. Since my retirement from military life eight years ago, I've been engaged in researching and writing on military history and defence issues that are of interest to me, mostly over the winter months and sometimes continues well into the spring. However there has always been a pause …fishing season…my other passion.

Mother Nature always seemed to cooperate with this repetitive cycle but the winter of 2014/15 was anything but normal whose persistence and long to delay to summer did not favour any early start to the active fishing season. In fact the weather was so poor and the fishing so bad, the season long delayed, that the season never seemed to happen at all for 2015. But an opportunity presented itself where my time was better spent elsewhere.

Most of my past research concerned Debert and its role during the Second World War. A number of chance encounters on air crashes in Guysborough County during that period lead me further afield that resulted in the most productive writing that I have had to date. I was very fortunate to become pre-occupied with the publication of two articles and another one currently in the mill for publication on a scope further afield that broaden my understanding and history of operational training units both in Nova Scotia and New Brunswick.

All this new research dealt with local air related incidents during the war. The first story had to do with an Anson crash in August 1945, "Girl on the Wing." This was the stuff of local legend and legend that turned out to be fact. The second story arose from a chance encounter concerning a Ventura that went down near Country Harbour. That lead to a serialized story over eight weeks in the Guysborough Journal entitled "Mystery on the Lake".

"Mystery on the Lake" was indeed a true mystery. It involved the identification of a mystery aircraft that turned out to be a Ventura bomber, with USN markings, that forced landed on Archibald Big Lake in Guysborough County on 4 March 1944. There was a great deal written on this incident but the details were incorrect. The aircraft, unit of origin, and other points were shrouded in the mist of time with some inaccuracy. This took time to resolve and lead me to the Pennfield Parish Military Historical Society and G. Christian Larsen for assistance in resolving some of the outstanding issues

It took some time to resolve the issues around that incident but with the help of some fine people, I was finally able to track down the actual crash record with the help of Major Mathias Joost, Operational Records Team, Directorate of History and Heritage (DHH), Canadian Armed Forces Ottawa, On. This "found" record finally helped to resolve all the issues and put the true story of this incident in it proper historical context. The final story is titled "What's in a name" that I hope will be published in due course.

Christian Larsen of the "Pennfield Parish Military Historical Society" graciously allowed me to use many of his photographs for my written work. He was also very helpful in my

understanding of the provenance of the Ventura bomber that I was investigating for "Mystery on the Lake".

The result of what was to be an interim project was this profile of training at Pennfield Ridge conducted by Operational Training Unit (O.T.U.) 34 from 1942 to 1944, which I hope will be added to your archives in a token of my appreciation to Christian Larsen and the "Pennfield Parish Military Historical Society" for your most generous help and assistance.

"I'll begin at the beginning – (The Quiet Man)"

Our story begins at Port Portmarnock Beach Ireland of all places. It may seem to be the strangest of places to begin the story of Pennfield Ridge. Port Portmarnock Beach is known as the velvet strand beach, and is right on the flight path to Dublin international airport, only minutes away from my daughter's home in Sword Co. Dublin. It is the place that has a direct connection to Pennfield.

Portmarnock Beach was the launch point for two aerial exploits of the early 1930s. This was when the public`s interest in all things aviation was new and at its highest. The exploits of Captain Charles E. Kingsford-Smith was widely followed in the presses. Kingsford-Smith with a crew of three in a Fokker Tri-motor called the Southern Cross attempted one of the first trans-Atlantic flights from there on 25 June 1930.

Kingsford-Smith's adventure was closely followed two years later by James Mollison. Mollison wanted to be the first pilot to perform an East-to-West solo trans-Atlantic flight. His flight was planned from Portmarnock, Ireland to of all places, Pennfield Ridge, New Brunswick, Canada.

From the author's files: Portmarnock Beach Monument June 2015 marking Kingsford-Smith's and Mollison's start points for their epic trans-Atlantic journeys

No reason was given as to why Mollison chose Pennfield as a final destination on this East to West solo flight. We must surmise though that he came there perhaps that there was already an airfield of some note. Thus Mollison would have some support for him and his aircraft at the conclusion of his epic journey.

Files Pennfield Parish Military Historical Society (with permission) – Mollison at Pennfield

It may well-have been that Mollison`s journey to Pennfield had some later influence to its eventual selection as a British Commonwealth Air Training Plan airfield many years later. In any case Pennfield would become an integral part of that plan that would contribute greatly to Canada`s ongoing efforts during the Second World War.

The British Commonwealth Air Training Plan (BCATP) was a great enterprise, arguably Canada's greatest contribution to the Second World War, and indeed there are many others. But there was some doubt at the beginning of the Second World War as to what "Canada's" limits and contribution should be.

The prevailing thought was that Canada's major contribution would be solely be the British Commonwealth Air Training Plan (BCATP), becoming the "aerodrome of democracy", limiting our war participation to the training of Allied aircrews on Canadian soil. [1] Mackenzie King signed the BCATP on 17 December 1939, which was coincidentally his birthday, three and a half months after the declaration of Canadian hostilities.[2]

King's plans for the BCATP were ambitious. The facilities simply did not exist in 1939. They had to be created and built largely from the ground up. What Mackenzie King's declaration of 17 December did was not only to increase the Canadian defence establishment but also it set in motion commitments to a growing contribution to the war effort.

The government's actions though set Canada's economy firmly on a war footing. The government of the day not only mobilized its defence establishments, but it also mobilized the country's economic and labour capacity to achieve those ends, often under extremely tight deadlines.

The airfield at Pennfield would come to be a part of that plan. It would eventually become the home of Operational Training Unit (OTU) 34 in 1942. But in the meantime an airfield, supporting infrastructure, and facilities had to be constructed!

The BCATP infrastructure and aerodrome building program was most ambitious. It required detailed organization, thought, and planning. It was eventually achieved because of standardization. Standardization was the goal. Almost all the training establishments were built on the same pattern achieving efficiencies that helped save time and effort.[3]

Contractors were thus able to rapidly build standardized facilities. The aerodromes were often completed with all buildings, including hangars, barracks and workshops, and hard surfaced runways within the incredibly short period of eight weeks from the shovel in the ground to planes on the tarmac.[4]

King placed great importance to the BCATP as Canada's great contribution to the war effort.[5] The aim of the plan had to be achieved given this importance. The reality was that Canada had only 235 pilots on the air forces' strength in August 1939 when Canada signed the agreement in December.[6]

But from 17 December 1939 the die would be cast.[7] Nine hundred and eighty nine million dollars were set aside to achieve its aim that was designed to train 850 pilots, 510 air observers - navigators and 870 wireless operator/air gunners monthly; with the hope of training a total of 29,000 aircrew annually.[8]

Some 130000 personnel eventually were trained as pilots, navigators, flight engineers as well as sundry flight crew.[9] But in December 1939 that outcome was doubtful as the "Plan" was scheduled to start only a few short months away in April 1940.

So a great enterprise began and grew from very humble beginnings in December 1939, an organization built from the ground up. Stating intent in December 1939 was all was well and fine but it would stretch the bounds of reason, practicality, and reality. Getting there would be a monumental effort.

The aerodromes including all buildings, hangars, barracks and workshops, and hard surfaced runways were to be built within an incredibly short space of eight weeks. It was

a testament to Canadian will, tenacity, ingenuity, skill, tenacity, and determination that got them most of the way there. Standardization helped and although course started on set dates, there was much left undone. Construction and worked continued as the men were trained.

Files Pennfield Parish Military Historical Society (with permission) - Construction

Runways were built on the standard pattern of one hundred feet (30 m) wide and twenty-five hundred feet (750 m) long laid out in triangular form.[10]

Files Pennfield Parish Military Historical Society (with permission)- Air Field today

Canada was able to meet the start date of 29 April 1940 and received its first arrivals to the plan. It was miraculous but it was largely achieved through the dint of hard work and determination.

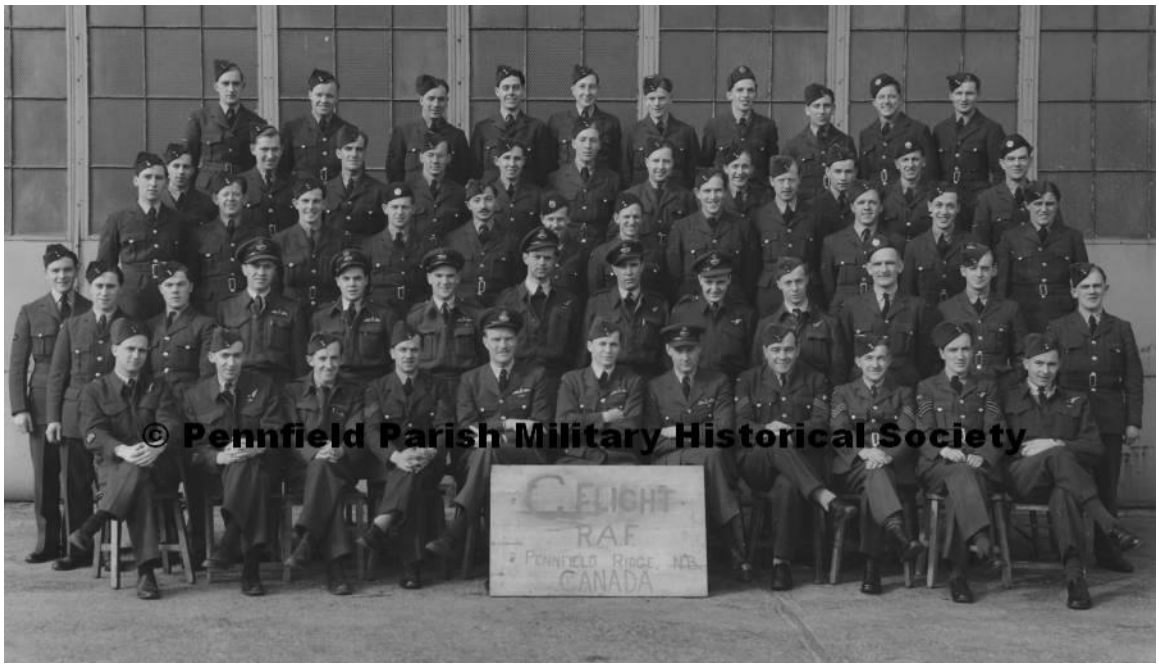
The BCATP training did commence 29 April 1940. Indeed all the schools were fully operational by April 1942.[11] Coincidentally Operational Training Unit 34 would be stood up at Pennfield in May 1942.

Canada, National Defence, Director of History and Heritage, File 74/13 No. 34 O.T.U. Penfield, NB

Operational Training Unit (O.T.U.) 34 like its sister unit Operational Training Unit 31 of one year earlier originated as a transfer of a training unit from the United Kingdom, this one from Greenock Scotland. This unit departed 8 April and arrived at Halifax on 16 April 1942.[12] O.T.U. 34 was originally formed in Canada to train crews for torpedo bombing on the Hampden bomber. It didn't quite work out that way.

O.T.U. 34 was supposed to be a sister squadron to O.T.U 32 then training at Patricia bay in British Columbia. The first change to its fortunes was a change of location. It was formed by Organization order No 54 and was to commence training effective 1 June 1942 at Yarmouth NS. But that order was amended 2 May 1942. O.T.U.34 was subsequently

transferred to Pennfield NB. The reason was simple, Yarmouth was considered the better base for an ***operational*** and not a training unit at the time.[13]



Files Pennfield Parish Military Historical Society (with permission) – "C" Flight 1942

The second change of fortunes was in the aircraft assigned to O.T.U. 34. At this time the Hampden Bomber, previously providing yeoman service in England, was simply considered obsolete. The unit was converted to the Ventura Bomber and assigned to train pilots with a similar mandate as O.T.U. 31 Debert, NS.

Training at Pennfield like Debert was to include "ferry" training that would enable its graduates to transfer the type to England on completion of their course. The sole reason why the Ventura and not the Hudson Bomber was selected though, was that there were no Hudson Bombers available in quantity to train at Pennfield.[14]

The move by O.T.U. 34 to Pennfield was neither smooth nor was it easy. Like Debert a year earlier, much remained to be done before its arrival. The airfield lacked considerable infrastructure to properly accept a functioning training unit. There was a shortage of hangar accommodation and the runways were incomplete. There was also a shortage of taxiways that limited access to the runways.

But it was space and the lack of accommodation that was the real problem. It was necessary to leave behind a detachment of 200 airmen at Yarmouth until the situation could be rectified. This detachment would be responsible for armament training that involve gunnery and bombing. The detachment was eventually expected to be returned to Pennfield. [15] But this only added to the problems of training. The separation of key personnel integral to the unit's training created problems that deeply impacted the quality of the training.

The unit's aircraft establishment was also problematics. In addition to the Ventura Bomber, O.T.U. 34 was equipped with a small variety of other aircraft, one of these was the Lysander. The Lysander's prime task was gunnery practice. It was supposed to be the tow aircraft for gunnery targets for its students. The problem, was that the Lysander was too slow and had no towing gear to be effective in this role.

Files Pennfield Parish Military Historical Society (with permission) – Lysander

There was also a lack of a 400m firing range which meant that the first serials were graduated out of O.T.U. 34 without no air to air firing and no bombing practice. Other equipment, flight and maintenance shortfalls greatly impacted wireless and other training, especially night and low level flying. It was a shambles and morale was very low.[16] All these issues had to be sorted out before things eventually improved.

So the Pennfield training was initially scaled back to a half production cycle with the hope of resolving these problems. O.T.U. 34 would start small then build up to full scale production. Thus began training 14 of 28 crews desired on an 8-week training program.

Crew training was designed for four positions comprised of pilot, air observer, wireless air gunner, and air gunner. The scale of aircraft provided for that training was 54 Ventura II bombers, which began arriving at the unit between May and August 1942.[17]


Files Pennfield Parish Military Historical Society (with permission)- Ventura at take-off

Still there was continued concern with O.T.U. 34's low production. A solution was sought and it was determined that if the course length was increased to 12 weeks, the student population would be increased by 50%, thus the production targets would be achieved. This changed the intake throughput that saw 15 crews commencing training every four weeks. These modifications were implemented by Organization Order 95 that cancelled Organization 54 that formed O.T.U. 34, which was now given a revised mandate.

We must remember though that under Organization 54 O.T.U 34 was mandate to move from Yarmouth, NS on 24 May 1942 to Pennfield effective 1 June 1942. It was also mandated to start the first course commencing 8 June 1942.[18] It was to be a very rapid move for in less than three weeks' time, O.T.U 34 had to be up and running! So the revisions of mandate likely had a role to play in its low first productions too.

Then if those changes were not enough, Operational Training Unit 34 scope and mission were added too as well. Like Debert, O.T.U. 34 would come to be assigned the additional task of "ferrying". It would also train pilots recently completing and graduating from their operational training at O.T.U. 31 Debert. Debert was assigned a ferry function in moving aircraft from Canada to the United Kingdom.

It just wasn't their own pilots who need to be trained in this role, an intake from Debert was expected as well. The Debert pilots were to be converted to fly the Ventura aircraft simply because there were no more Hudson Bombers to move at the time. They were given additional training of five hours dual and solo for the task ahead of them. Thus Pennfield would receive an additional 20 pilots due for ferry operations from Debert as a part of their throughput as a result that added an additional strain and burden to the training, accommodations and infrastructure.[19] All in all the plans and desired outcomes planned for Pennfield were most ambitious indeed.

There would be an expectation that the situation would settle out. It did not. By October 1942 Pennfield had an aircraft establishment of 9 Anson (Mk I & Mk II), 4 Lysander, and 52 Ventura (Mk I & Mk II) on strength for it operational training requirements. But Pennfield state was to become a little more complicated as Pennfield's mandate grew by leaps and bounds!

In November 1942 the Air Ministry decided to allot 18 B-25 Mitchells to Pennfield's aircraft establishment with a view to reduce the number of Ventura on establishment down to 39. There were a number of on-going maintenance issues with the Ventura. It was surmised that the introduction of the new type would ease the situation. [20] The mention of the maintenance issue in the official history is suggestive and will be discussed at length elsewhere in this paper.

The unit was also bolstered with Hudson aircraft from O.T.U 31 and 36. These aircraft were used in Pennfield's air firing training exercises.[21] All in all there was an eclectic mix of aircraft at Pennfield. But the Ventura was to remain the predominant asset at Pennfield for the duration of its existence.

The selection of the Ventura was a result of a very definitive decision by the UK who directed the Chief of Air Staff to allot the Ventura to O.T.U. 34. It was likely chosen based on the merits of the Lockheed Hudson that was successfully used in the early part of the war.

The Ventura was a similar type of aircraft but was much faster and carried a heavier load than the Hudson. They were a well-built aircraft. The proximity of American factories likely influence their purchase and use. The aircraft were supplied at a rate of 14 per month from May to July and 12 in August 1942 for a total of 54 aircraft that comprised Pennfield's Ventura establishment.[22]

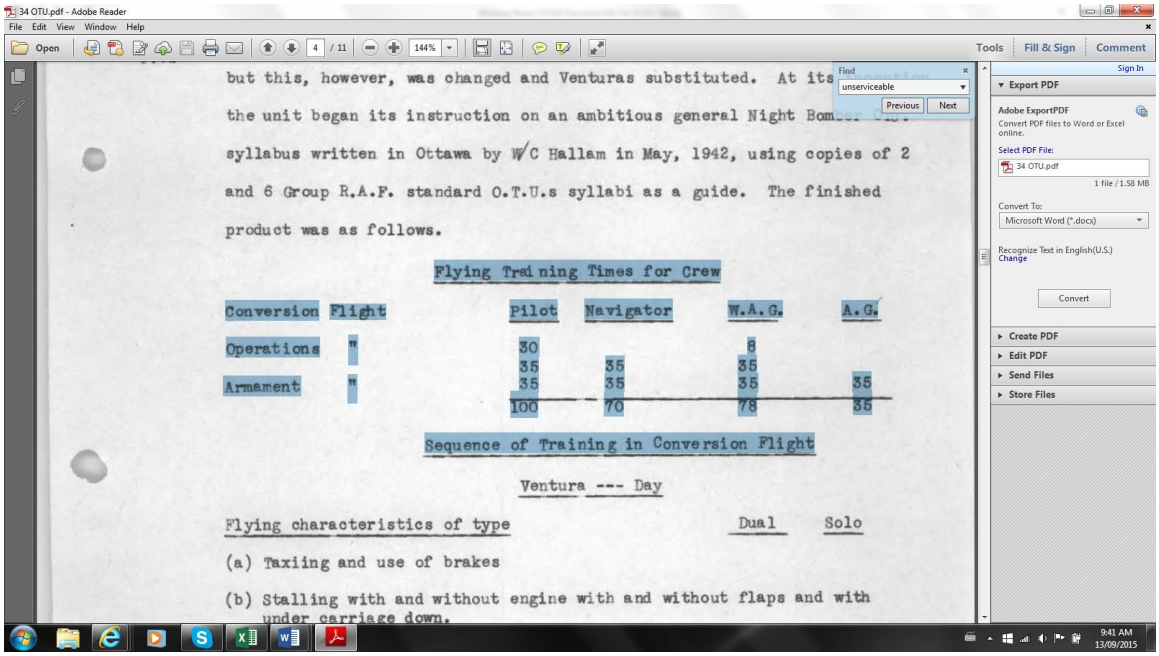
Files Pennfield Parish Military Historical Society (with permission) – Ferrying of US procured Ventura to Pennfield

Training Syllabus

The official history of O.T.U. 34 clearly indicated that the unit was to commence training in the antisubmarine role. The role seemed simple enough. But the gyrations around the mandate for Pennfield were seldom simple. The training syllabus section discussed training both in night bombing and light bombing role. This may seem confusing. But the official history is a collation of snippets of the decisions made and history of the unit over

a two year period. They are very suggestive of the volatility and perhaps the confusion from the change of roles and functions being made over the two year period of the unit's existence.

So from the original training syllabus O.T.U 34 was supposed to produce crew for night bombing operations. Its original training syllabus was drafted by W/C Hallam in May 1942 using 6 Group and RAF standard O.T.U. syllabi as a guide.[23]



but this, however, was changed and Venturas substituted. At its

the unit began its instruction on an ambitious general Night Bom

syllabus written in Ottawa by W/C Hallam in May, 1942, using copies of 2

and 6 Group R.A.F. standard O.T.U.s syllabi as a guide. The finished

product was as follows.

Flying Training Times for Crew

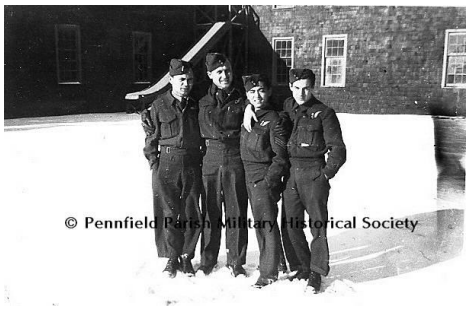
Conversion Flight	Pilot	Navigator	W.A.G.	A.G.
Operations "	30		8	
	35	35	35	
Armament "	35	35	35	35
	100	70	78	35

Sequence of Training in Conversion Flight

Ventura --- Day

Flying characteristics of type	Dual	Solo
(a) Taxiing and use of brakes		
(b) Stalling with and without engine with and without flaps and with under carriage down.		

The program was designed over three phases, conversion training (30 hrs), operations (35 hours) and Armament (35 hours) for a grand-total of 100 hours for pilots under training. Navigators, Wireless Air Gunners (WAG) and Air gunners (AG) would receive less air time and were generally spaced over the operations and armament training phases usually in 35 hour training slots allotted there. Navigators and WAGs received 70 and 78 hours total training while AGs 35 at the armament phase only.[24]



Files Pennfield Parish Military Historical Society (with permission) – Poissant/Ryan/Bing/ Saumer 1943

Flying was only a small part of the training. Considerable time was also given to ground lectures. The subjects ranged widely including airmanship, Army Air Support, Bombing, Gunnery, Instructional fuselage, Intelligence, Meteorology, Navigation, Operations photography, Signals and Tactics. It varied by crew position.

The time devoted to flight training in the original syllabus was thought to be much too high. There was much debate within the community. Too much effort was being devoted to armament exercise. The training was geared to light bomber training and 100 hours was thought to be too much for that effort.

It was a heated argument and debate that would involve Pennfield, the Department of Transport (DOT) (Canada) and the Air Ministry (London). Pennfield argued that that ***more*** not ***less*** time was needed on operational exercises. Much of the armament training they argued could be combined in the operational exercise along with the photography portion and other elements as much as possible.

The Air Ministry wanted a reduction of training to 72 hours. Pennfield continued to argue for the original 100 hour minimum with more time on dual. They hoped would that this would reduce the accident rate and thus improve morale with the attendant benefit of pushing crews to operations sooner.

The argument was finally settled by the DOT who deemed that 80 hours was sufficient for the task at hand. The argument was settled on the point that the "Light Bomber work was essentially straightforward requiring very little night flying", and so 80 hours was the amount decreed."[25]

Apart from the additional of fighter affiliation flights in April 1943, there would be no more changes to the syllabus and training programs at Pennfield. Training proceeded smoothly until the O. T. U. was closed on April 28, 1944.[26]

Instructors

The instructors at O.T.U. 34 came from the first and second echelons in the unit transferred from the Greenock, UK. They were tour expired pilots rested from operations. Training commenced ahead of the arrival of the second echelon on 20 June 1942. This created a staff shortage.

A request was made to the RCAF for additional personnel to make up this deficiency that was deemed necessary for the efficient training of the student load. A request was made for:

a. Signals - 6 NCS WAGs, operational experience (if possible)
b. Navigation –
    - l Observer (S.N. Astro)
    - 2 Observers (S. N.)
    - 4 Observers to be attached to flights for instructing.
c. Gunnery -
    - l Flying Officer,
    - 1 Pilot Officer - Gunnery Institutors
    - 2 NCO WAGS, for ground lectures.

The RCAF was only able to meet one request for an air observer, the rest of the instructor establishment was eventually provided by the Air Ministry. This meant that there was insufficient staff at the outset with the concomitant impacts to training.[27]

Thus it became necessary to reduce intakes by September 1942 because of this staff shortfall. A novel approach was taken to bolster their ranks and eliminate wastage of effort. Six pilots on a reduced course of training were retained as instructors. These pilots were already trained to an extent and had certain knowledge and familiarity with the Ventura Bomber.

They were all qualified first officers for day operations. Their usefulness would be toward the application and training of fuselage and cockpit drill instruction. This effort was thought to greatly assist the aerodrome control officer in the production leading to trained and qualified pilots in the light bombing role that the unit was originally tasked to do.[28]

We see in this decision another change to O.T.U. 34's mandate and role, the change from "night" to "light" bombing that was less complicated and that involved less training time. The light bomber role involved the need for some Army - Air Force cooperation. Mechanized Warfare was au fait and it was thought that an officer with recent operational experience and who was staff-trained at Royal Military College, Kingston, would be a boon to the unit. It was suggested that a position be created and refilled every three months with new blood from a steady flow of Army Officers ensuring that the Air Force's training would be kept up to date with the current tactics and developments.[29]

The unit was manned by RAF personnel until April 1944 when it ceased to exist. The instructors were posted back to the United Kingdom for second tours or to new positions at other operational training units.[30]

Training

There would be an eclectic mix of trainees at Pennfield. The intakes to 34 O.T.U. for its first six months of operations consisted of RCAF, RNZAF and RAF pilots, navigators and gunners. These would be followed by personnel from RAAF and several Dutch crews over its two year life span. By the end of 1942, O.T.U. 34 accommodated the intake of RCAF, RAAF, RNZAF and RAF including several Dutch crews at the rate of[31]:

- RCAF - 39%
- RAAF - 14%,
- RNZAF - 16%, and
- RAF - 31%.

The training of the Dutch crews was singular. They were trained on the B-25 Mitchell to augment the Dutch Squadron then in the UK. Their serial was filled out with RAF personnel who were included in this quota and who would go on to serve on the B-25 in the UK.

Training at Pennfield in 1942 was problematic but the unit was largely back on track by 1943. Notwithstanding the optimism of getting on, there were some further delays in 1943. There was a personnel shortage in August and September of that year that further delayed and impacted training.

Files Pennfield Parish Military Historical Society (with permission) – No.1 Course W/AG (1942)

All outputs from O.T.U. 34 Pennfield were destined for the UK. The journey there upon completion of training was by one of two methods, boat or air. Pennfield sometimes attached air crew to Ferry Command for their use as one-trippers in the movement of aircraft overseas to the UK.[32]

Wastage Rates

Wastage was an amorphous term. It describes anything from a fatality to administrative loss as a training failure.[33] Wastage is also sublime term. It shielded the public from the harsh reality of facts, of the pain and suffering hidden in the content of statistics. Statistics reduced pain and suffering to a series of mere expectations and the acceptability of the consequences in the course of actions and decisions made in the charnel house of war. “Wastage” would come to be symbolize the “normal” but it may have also masked

what was acceptable to the public. The problem though is “what is an acceptable rate?” There is no goo d answer to that question especially in the time of war.

Files Pennfield Parish Military Historical Society (with permission) – Ventura AE907 (1944)

There will always be loss and casualties in war. That is the nature of the beast.

This section will attempt to delve into the statistics of Pennfield’s wastage rate (figure 1) through an analysis of all the crash details from the Accident Mishap Reports that are found on the Pennfield Ridge Air website.

The official record of Pennfield’s wastage is found in Figure 1:[34]

Figure 1 _DHH 74/13 Pennfield O.T.U. Wastage Synopsis 1942-44

INTAKES, OUTPUTS, WASTAGE AND PERCENTAGE AT 34 O.T.U., PENNFIELD RIDGE

Note Figures for Pilots - to be taken as Crews.

	RCAF	RAAF	RNZAF	RAF	Misc.	Total	RCAF	RAAF	RNZAF	RAF	Misc.	Total	RCAF	RAAF	RNZAF	RAF	Misc.	Total	Percent
From 1/6/42 to End of /42	21		11	39		71	18		11	33		62				3		3	4.5
From 1/6/42 to End of /43	124	50	72	102		348	106	38	58	82		284	12	7	11	13		43	13.1
From 1/6/42 until Closing, 28/4/44	183	63	72	143		461	160	50	58	117		385	18	8	11	19		56	12.7

It indicates that the accident rate within the first six months of operations in 1942 averaged 2.5 airframes per month with an aircrew wastage rate of 4.5%. It subsequently rose to 13.1% at the end of 1943, then declined to 12.7% at the close in 1944.[35]

The DHH 74/13 history files available for O.T.U. 34 do not segregate or provide the casualty or fatality lists in Figure 1. All the data is lumped together.

It is interesting to note that the figures for pilots was taken to mean “all aircrew” per aircraft incident that was usually four. This was misleading. Not all air incidents had a

"full" compliment of crew aboard. Some had more, carrying passengers, some had even less; for example, a simple two man administrative flight.

There were 461 aircrew who are included in the wastage rate from 1942 to 1944.

The expected crew number for wastage can be roughly estimated. The expected wastage rate from the air crash records available for Pennfield should be roughly (136 * 4) totalling about 544 crew members assuming that all the aircraft were of the same type and that all carried the same crew compliment. It is obvious from this difference that that was not the case. Not every flight flown, therefore had a full crew compliment.

The official records emphasis on the number of crew wastage, and not the airframe wastage, tends to suggest the reason for accidents and other incidents lay in some aspect of their training. Training certainly played a role. There are many instances where youthful exuberance led to tragic and often fatal consequences. But the training program itself was designed to safely train pilots on the employment and safe handling of Ventura aircraft given the emphasis from the training syllabus.

Seventy six hours of 100 total flying hours first allotted in the program was designed to be flown within controlled areas and under specific programs designed to enhance pilot skills. Twenty six of the 100 hours pilot flight training happened outside of controlled areas, where crews were left under their own direction devices and where conditions approximated operational conditions that were mission oriented "exercises". It was all very well controlled and fixed.[36] Still there were problems. It would seem the choice of the Ventura, played some role as well.

The Ventura's promise didn't bear out initially. There were problems that had to be resolved. It was noted that in the first five months of operation the Ventura's at Pennfield were consistently unserviceable. Maintenance took much of that blame because of the lack of vital spares, such as tires and electrical equipment. More importantly there seemed to be high incidents of engine, airframe, and oleo leg failures.[37]

The solution for resolving these deficiencies seemed to be the move toward another airframe, the B-25 Mitchell. But it was more than that. A remark in the official history is suggestive of the real reason for the maintenance issue; "changing over to a completely new type would be offset by the fact that the winter would be nearly over and that the Maintenance group would be in a position to face the problem." [38] The maintenance group was already overwhelmed with what they had on hand. They didn't need a new type to add to their difficulties.

An attempt to resolve the deficiency happened with the introduction of a new Mark of Ventura. Pennfield commenced refreshing its Ventura Fleet in September 1943. It Ventura I and II's were replaced with the Ventura GRV that began arriving in force November 1943 with the arrival of 20 from factories in the United States.[39]

But the real issues concerning the Ventura type may lie elsewhere. They may have been overlooked because no one had the time to deal with it. First, was the issue of the "weather"! The Ventura was quite likely not designed with the vagaries and demands of the Canadian winter in mind!

Second, was the issue of experience on type with the structural needs of the airframe. Pennfield was a training unit. Its pilots were inexperienced. The mention of oleo failures is suggestive. These aircraft were flown hard and took a lot of punishment and the resulting failures and lack of spare parts exacerbated production problems in the training cycle.

The Ventura was probably hard pressed to take the punishment meted out to it in the training program given the fact the fleet was replaced twice over during the course of OTU. 34`s existence based on the accident records available from this unit!

Ventura Bomber Analysis Accident Records OTU34 Pennfield NB

This section will investigate the Ventura bomber from the perspective of accident by accident at Pennfield from 1942 to 1944. The accident records of OTU34 at Pennfield NB reveal a great deal on the problems with the Ventura Bomber. The records indicate the difficulties of training and of the problems associated with the operations of the Ventura Bomber.

A Pennfield pool of 136 records exists that includes all Ventura and other aircraft. These records highlight both accidents and incidents at Pennfield. They were reviewed from January 1942 to December 1944 inclusive. Ventura records were then isolated from other aircraft accident incidents. The reader should bear in mind that the numbers reflected in the following analysis may not necessarily total to 136 records.

A data set was recorded manually over a period of days. Any errors or omission are the authors. There may be some slight variances to the total but a variance of +/- 2-4 records variance overall does not materially change the outcome of the analysis.

The distribution of all accidents and incidents is given in Table 1. All aircraft types are reflected in the total of 136 records given the eclectic nature of Pennfield's aircraft establishment. Table 1 reflects the Ventura total of 132 records.
Table 1:

Year	**Accidents/Incidents (all types)**
1942	34
1943	79
1944	19

The highest frequency of accidents/incidents was recorded in 1943 when Pennfield operated on full calendar year. The year's 1942 and 1944 were part years reflecting its

start up in 1942 while 1944 marked the winding down of the training at O.T.U. 34's stand down.

The data was broken down by month and category for all other and Ventura incidents between 1942 and 1944. The assessment guidelines are found in Table 2:
Table 2 – Category Accident Rating Scale:

Terms and Abbreviations

Category "A"	"The aircraft is destroyed, declared missing or damaged beyond economical repair."
Category "B"	"The aircraft must be shipped, not flown under its own power, to a contractor or depot level facility for repair."
Category "C"	"The aircraft sustains damage to a major component requiring repair beyond field level resources including those occurrences where: (1) The aircraft must be flown to a contractor or depot level facility for repair; (2) The damaged major component is shipped to a contractor or depot level facility for repair; (3) The repair is carried out by a mobile repair party from a depot level or contractor; or (4) The major component is damaged beyond economical repair."
Category "D"	"Damage to any component that can be repaired within field level resources."

SOURCE: "Canadian Military Aircraft Serial Numbers" website.

The first step was to segregate the Ventura data. There was an eclectic mix of aircraft at Pennfield between 1942 and 1944. Table 3 is the accident history of the other aircraft at Pennfield.

Table 3 – Accident History of Other Aircraft

	1942	1943	1944			Cat A	Cat B	Cat C	Cat D		
Anson	5			5			2		3	5	
Bolingbroke		1		1			1			1	
Mosquito		1	1	2				1	1	2	
Hudson		2		2		1			1	2	
Total	5	4	1	10		1	3	1	5	10	

Ten other aircraft had accidents or incidents at Pennfield. It was observed that some aircraft; Anson, Bolingbroke and Mosquito, were not necessarily a part of O.T.U. 34`s establishment in the timeframe of its existence. These incidents resulted from visiting aircraft from other units and airfields. The Mosquito was out of Greenwood, The Anson's were being transferred or ferried from Scoudouc, Chatham, or other units, the Hudson was out of Greenwood, but the Bolingbroke appeared to be a part of Pennfield`s early establishment.

Isolating the eclectic aircraft from the grand total this leaves 126 Ventura records available for analysis in the Pennfield data. The results of that breakdown and assessment are found in Table 4 (Category Breakdown by Month and Year).

Table 4_ Category Breakdown by Month and Year

Cat. A	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	1942							1				2	1	4
	1943	2	3	2	1	1	3		2			1	2	17
	1944	3												3
	total	5	3	2	1	1	3	1	2	0	0	3	3	24
Cat. B	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	1942								1	3	1	1	1	7
	1943	4	3	4		1		10	1	1	2	3	5	34
	1944	1	1	1										3
	total	5	4	5	0	1	0	10	2	4	3	4	6	44
Cat. C	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	1942							1	3	3	3	2	1	13
	1943		1	2		1	2	0	1		1	1	2	11
	1944	5	2		1									8
	total	5	3	2	1	1	2	1	4	3	4	3	3	32
Cat. D	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	1942											6	4	10
	1943	6	4	2					2				3	17
	1944	1	1	3										5
	total	7	5	5	0	0	0	0	2	0	0	6	7	32

There were 24 Category A, 44 Category B, 32, Category C, and 32 Category D incidents between 1942 and 1944. Category A incidents represented largely catastrophic loss of an aircraft that most times with a grievous loss of life or injury. But not all Category A accidents resulted in fatalities though. Some were survivable.

Categories B to D largely represented repairable accidents where assets were either written off or repaired and returned to service. Category B represented the most serious incident level. The key determination was based on the fly- ability of the aircraft. Category B incidents assets had to be physically returned and not flown to service depots for repair suggesting a degree of fragility and complexity on the airframe that could not be corrected within the units maintenance assets.

Category C was similar in aspects but the key difference was that aircraft were capable of being flown to service depot to units for repair. Category D incidents were generally repaired on site with unit assets. Thus we see the gradient from B to D categories.

This is the gross accident picture. But the analysis of the aircraft/incidents had an interesting slant. One could easily assume that all these accidents occurred over time and only on a single airframe. In fact it was not that simple. A number of multiple accidents/incidents occurred on the same airframe that may be indicative of the stresses placed on the airframe in training.

The Ventura subset of data was further subdivided into multiple and single incidents on airframe. It provides some insight on the training stresses placed on the aircraft.

There were 23 multiple accident/incidents that occurred on 11 single Ventura airframes at Pennfield. To arrive at the actual number of single airframes impacted by accidents/incidents at Pennfield we must deduct 23 from 126 incidents and add back 11 to determine the net number of airframes that were actually impacted by accident or incident. Some 114 Ventura actual airframes suffered some single or multiple damage during OTU34's history between 1942 -1944 (Table 4).

It would appear then that nine percent (11 of 114) of Pennfield's Ventura aircraft incurred two or more accidents on the same airframe that is indicative of a high level of stress on the airframe and an indication of the intensity of the training.

It is also interesting to note that Pennfield's authorized Ventura establishment was 54 airframes. There 109 airframes that had single incident occurrences on type. We get a sense from this data that Pennfield's Ventura fleet was replenished and refreshed least twice over the course of its existence. There were any number of reasons that included the ferry of aircraft to theatre of operations, catastrophic crashes, or replacement of exiting aircraft with updated type. Still replenishment of a fleet within a two year time frame is once again suggestive of the stresses placed on the airframe within the training program.

The "Multiple Incident" story is interesting (Table 5). It provides some insight on the total pool. There were 11 aircraft involved in multiple events.

Table 5 Multiple Accident/Incidents on Single Ventura Airframe

	Serial number	Total this Ac/	Date	Cat	Crew	Passengers	Casualties	Reason
1	Ventura I AE658		08-Oct-42	C	2			Ground Loop
			15-Dec-42	C	4			Oleo failure
		2						
2	Ventura II AJ211		29-Nov-42	C	-			ground loop
			08-Feb-43	A	3		3	crashed
		2						
3	Ventura Mk.I AE658		26-Aug-42	C	3			Tyre Burst
			23-Jul-43	B	2			Starboard U/C collapsed
		2						
4	Ventura Mk.I AE676		03-Oct-43	C	2			U/C Collapsed
			09-Jan-44	C	2			U/C collapsed (tail wheel)
		2						
5	Ventura Mk.II AE851		01-Mar-43	C	4			U/C failure
			14-Nov-43	C	2			heavy landing - engine failure
		2						
								U/C Collapsed - pilot inexperience
6	Ventura Mk.II AE887		25-Feb-43	C	2			U/C failure (port) - heavy landing
			29-Jul-43	B	2			
		2						
7	Ventura Mk.II AE907		06-Mar-43	-	2			diverted alterante airport - snowstorm
			31-Dec-43	D	2			Nosed up, tipped a/c on tarmac hard braking
			19-Jan-44	A	2			fuel starvation
		3						
8	Ventura Mk.II AE912		09-Mar-43	B	3			collision on runway, bomb doors opened
			26-Jul-43	B	3			collision with other A/C on ground
		2						
9	Ventura Mk.II AE925		17-Dec-43	C	4			collision while parking - taxiing
			02-Feb-44	D	2	1		collision while parking - taxiing
		2						
10	Ventura Mk.II AE926		16-Jan-43	B	3	5		U/C failure (starboard) - bad runway
			01-Jan-44	B	4			U/C failure (starboard) -icy runway
		2						
11	Ventura Mk.III FD697		16-Dec-43	C	4			low-level flying ex (below 250ft min) - hit ca
		2	19-Dec-43	A	4		4	low-level flying ex. Hit water tower crashed
	Totals	23			61	6	7	

These 23 incidents involved a total of 67 personnel, 61 crew and 6 passengers, which also resulted in the deaths of 7 crew.

An analysis was done on all 126 records. The results are summarized in the Table 6 – Summary of Accident Records. This summary reflects incidents - accident were material damage occurred. For example. diversions to alternate fields and other non-destructive incident were not considered in this analysis.

Table 6 –Summary of Accident Records –Ventura (adjusted- accidents only)

Unit Accident Profile	% Ventura (all 126)
Ventura 126 of 136 records	
23 Multiple	18%
103 Single	82%
67 pers/pass involved	
61 Crew	91%
6 Passenger	9%
7 fatal Cat A	10%

2 Survive Cat A	3%	
9 involved Cat A		
7 Cat A	78%	
2 Cat A	22%	
ratio fatal to survivable Cat A		..3.5 to 1

The 23 multiple incidents represent 18% of all Ventura related incidents-accidents. Sixty-one crew (4 members per 1 aircraft) and 6 passengers were involved in these incidents. The vast majority of personnel were able to walk away with no or some mild injuries. There was no record of fatality after the fact but that does not mean it did not happen. It means that was not recorded here.

There were three Cat A incidents in this cadre where aircraft were lost, destroyed, or totally written off. There were 67 service personnel involved in these incidents. Seven (10%) were killed or listed missing presumed dead while 2 (3%) crew members from one incident actually survived and lived to tell the tale. The fatality to survivor ratio was approximately 3.5 to1. It would seem that the odds were not in the favour of survival in the event of a Category "A" incident.

The mission profiles of the Cat. "A" incidents were:

- Night - Cross country exercise
- Local flying - precautionary and single engine landings. Duration one hour.
- Low level formation cross county flight. One pilot only.

Only crew members were involved in every Cat. "A" incidents. No passengers were involved or on board on any of these particular missions.

The multiple incident provides some insight on the effects of time of year regrading aircraft accidents (Table 7). It goes without saying that Canada has four seasons but these four seasons can generally be divided into a cooling and a warming season for the simplicity of this analysis. The cooling season had the higher the frequency of aircraft incidents which will be demonstrated in the next series of table and figure for aircraft incurring multiple incidents has an example.

Table 7 – Multiple Incidents on Single Airframe (Numbers by Month)

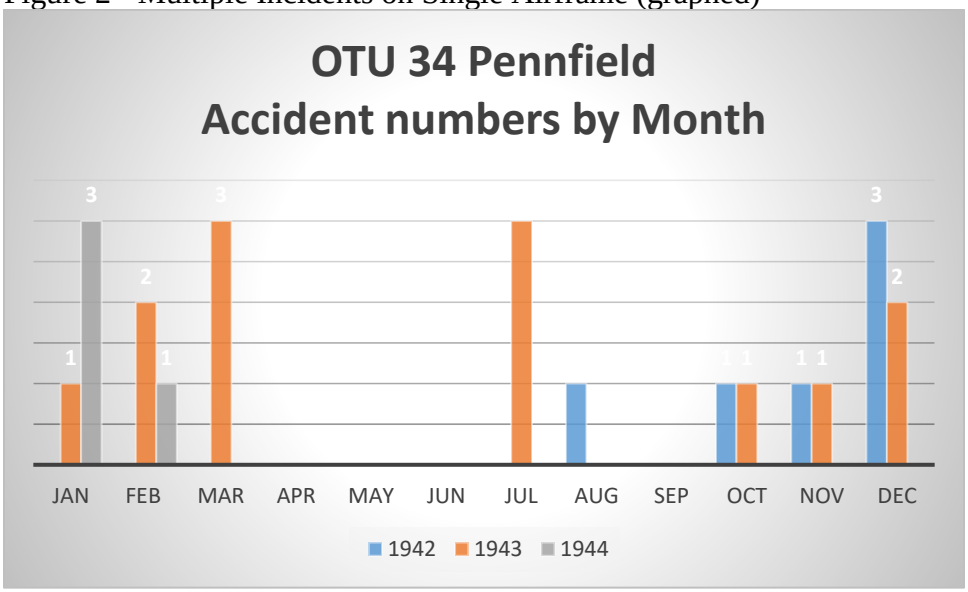
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1942								1		1	1	3	**6**
1943	1	2	3				3			1	1	2	**13**
1944	3	1											**4**
total	**4**	**3**	**3**	**0**	**0**	**0**	**3**	**1**	**0**	**2**	**2**	**5**	**23**

There were 23 known multiple incident events that occurred between 1942 and 1944. Six occurred in 1942, 13 in 1943, and 4 in 1944. The highest rate was in 1943 but 1942 and

1944 were only partial years that likely represented the stand up and stand down of OTU34.

The graphic in Figure 2 might help our understanding of the situation:

Figure 2 - Multiple Incidents on Single Airframe (graphed)



The distribution of events is interesting. There are concentrations of events between Jan to Mar in each year that may be attributed to the cold cycles within the calendar year. There is a break or lull between April to Jun of each year that is part of a warm cycle with sudden peak in Jul and Aug followed by a lull leading to an increase at the start of the next cooling trend in Oct through to December.

But if we look at this from nature's point of view, the cool trend starts in Oct through to the following March, whence spring and summer commence and continue the warming trend. There are only two peaks in this distribution, the great chaos between Oct-Mar and a summer peak in Jul/Aug. The weight of numbers also suggest that the incident rate was highest in the cold period and less so in the warm, 19 incidents in the cold period vs 4 in the warm that may suggestive that many of the problems would have been weather related (Figure 2).

The information above is related to multiple incidents on a single aircraft. The picture is quite similar for single accidents particular to one airframe (Table 8).

Table 9- Incidents on Single Airframe (Numbers by Month)

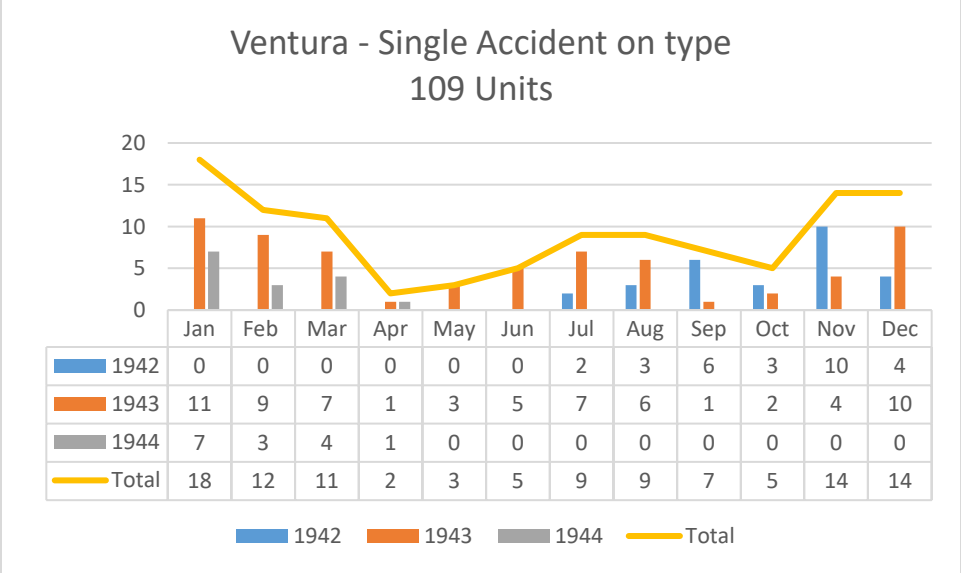
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1942	0	0	0	0	0	0	2	3	6	3	10	4	28
1943	11	9	7	1	3	5	7	6	1	2	4	10	66

1944	7	3	4	1	0	0	0	0	0	0	0	0	15
Total	18	12	11	2	3	5	9	9	7	5	14	14	109

There were 109 single incident reports available for analysis. The incident frequency occurred in the coldest periods between November and March and the lowest frequency between April to Oct between OTU34's start up 1942 and at its end in 1944. There were 28 incidents in 1942, 66 in 1943 and 15 in 1944. Seventy one of these incidents occurred in the cold period of November and March, while 38 occurred in the warmer period, a ratio of almost 2:1!

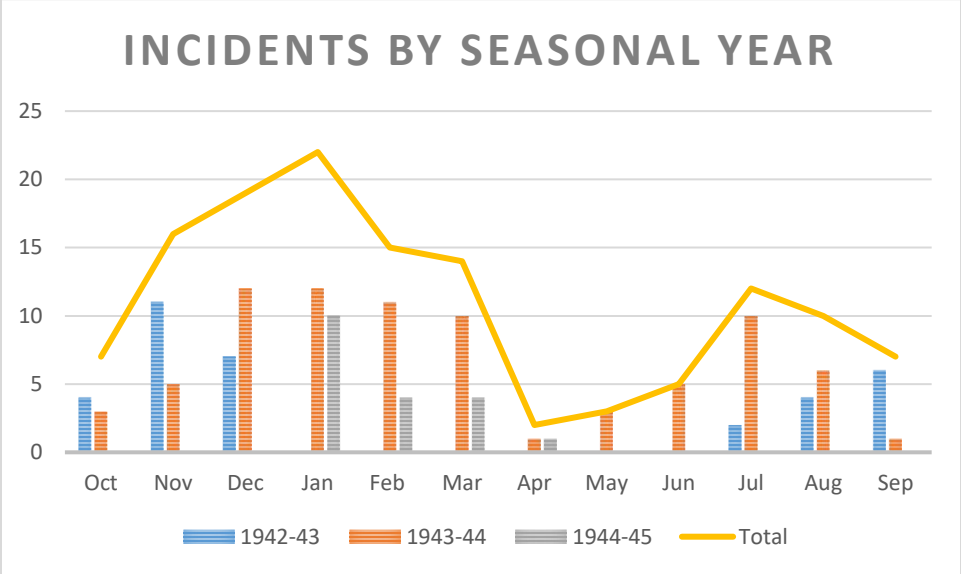
Figure 3 gives us some insight. It is a bar graph of recorded incidents by month and year. It clearly shows the highest and lowest frequency of all accidents from 1942 to 1944 with clear quarterly concentrations between Jan and March and October through to December. The lower frequencies between April to September.

Figure 3 – Single Accident-Incident Pool



But the calendar year view is deceptive. Grouping the data by seasonal year indicates clearly that weather had an impact on the Ventura (Figure 4).

Figure 4 – Incidents by Seasonal Year



Distinctively the data is bi-modal with two clear peaks cold and war season. This data set contains 132 records. Nine three accidents occurred in the cold period with 39 in the warm period between 1942 and 1944. Cold weather incidents outweigh warm weather incidents by a factor of 2.4 to 1.

Table 10 is a breakdown of the accident categories by month and year.

Table 10 - Accident Categories by Month And Year (1942-1944)

numbers:	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	1942	0	0	0	0	0	0	2	3	6	3	10	4	28
	1943	11	9	7	1	3	5	7	6	1	2	4	10	66
	1944	7	3	4	1	0	0	0	0	0	0	0	0	15
	Total	18	12	11	2	3	5	9	9	7	5	14	14	109
Cat. A	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	1942	0	0	0	0	0	0	1	0	0	0	2	1	4
	1943	2	2	2	1	1	3	0	2	0	0	1	1	15
	1944	2	0	0	0	0	0	0	0	0	0	0	0	2
	total	4	2	2	1	1	3	1	2	0	0	3	2	21
Cat. B	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	1942	0	0	0	0	0	0	0	1	3	1	1	1	7
	1943	3	3	3	0	1	0	7	1	1	2	3	5	29
	1944	0	1	1	0	0	0	0	0	0	0	0	0	2
	total	3	4	4	0	1	0	7	2	4	3	4	6	38
Cat. C	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	1942	0	0	0	0	0	0	1	2	3	2	1	0	9
	1943	0	0	1	0	1	2	0	1	0	0	0	1	6
	1944	4	2	0	1	0	0	0	0	0	0	0	0	7
	total	4	2	1	1	1	2	1	3	3	2	1	1	22
Cat. D	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	1942	0	0	0	0	0	0	0	0	0	0	6	4	
	1943	6	4	2	0	0	0	0	2	0	0	0	2	
	1944	0	1	2	0	0	0	0	0	0	0	0	0	
	total	6	5	4	0	0	0	0	2	0	0	6	6	29

The summary of accident incidents indicates that there were 21 category A, 38 Category B, 22 category C, and 29 Category D incidents between 1942 and 1944. Category A accidents were catastrophic. Thirteen of 21 incidents occurred in the cool period, the balance 8, in the warm. The Category A Cool to Warm ratio of events was 1.6 to 1.

Category B was more favourable. It had 21 incidents in the cool period with 17 in the warm. The Category B Cool to Warm ratio was almost 1:1. Category B events seemed to be independent of weather related causes.

Category C had 9 incidents in the cool with 12 in warm. Category C had the most favourable Cool to Warm profile of ratio less than 1:1. Category C events too seemed to be independent of weather related causes.

Category D incidents were greatly skewed in favour of cool weather. There were 27 Category D cool period incidents with only two warm period. The Category D Cool to Warm profile had a ratio of almost 14:1. This higher ratio suggests that weather may have been a contributing factor for Category D incidents, and given a higher ratio, quite possibly for category A incidents as well. The lower ratio at almost 1; 1 for category B and C suggests that weather was less likely a factor for these categories.

But these incidents only reflect what occurred at Pennfield Ridge, NB. They are merely indicative and are not conclusive. A fleet analysis of all Ventura's would be required in order to make any definitive statement on the matter. But they do point the way to some of the problems with the Ventura airframe.

Another indicator may lie in where these incidents actually occurred found in the frequency of events. The frequency of events rate may be indicative of activity within the unit's life cycle. It measures the height of training activity conducted especially at OTU34, Pennfield Ridge, NB. The frequency of events is looked at from two perspectives; where and when an accident occurred, principle cause of failure, and its primary mission.

From the perspective of when, the highest frequency of incidents occurred in 1943 when O.T.U. 34 was at the height of its active training activity. The frequency rate for 1942 and 1944 were its lowest. The years 1942 and 1944 represent the building up and winding down of O.T.U. 34. Thus one would reasonably expect the majority of incidents would occur when the unit was most active.

From the perspective of where these accidents occurred is also a measure of and indicative of the unit's training activity. It provides a profile the day to day activities and where the majority of incident actually took place. Table 11 is a listing of the projected flight end points that either originated or ended at Pennfield Ridge. This table includes all recorded category incidents as well as diversions and forced landings from other units.

Table 11 - Listing Projected Flight End Points

			Projected Flight End Point						
1942	Cat	**Pennfield**	**NB**	**Yarmouth**	**Greenwood**	**Other NS**	**Qc**	**US**	
	a	2				1		1	
	b	3		3					
	c	12		2				1	
	d	1	3	3			4	4	
		18	***3***	***8***	***0***	***1***	***4***	***6***	***40***
1943	Cat								
	a	6	5	1	1	3	1	1	
	b	25	1	7				1	
	c	11							
	d	3	3	6	2			3	
		45	***9***	***14***	***3***	***3***	***1***	***5***	***80***
1944	Cat								
	a	2	1						
	b	3							
	c	8	1						
	d	4	1						
		17	***3***	***0***	***0***	***0***	***0***	***0***	***20***
		80	**15**	**22**	**3**	**4**	**5**	**11**	**140**

Most flights staged from Pennfield occurred in New Brunswick. It was not surprising given the nature of its work, it was a training unit. The highest frequency of accidents were local in nature within certain boundaries. There were 140 incidents in all recorded at Pennfield between 1942 to 1944. Ten were Category A accidents. Six Category A accidents occurred outside the local airfield boundary but occurred in New Brunswick.

Thus the frequency of where incidents occurred tells us a lot about Pennfield's training. There were 95 incidents at Pennfield alone that suggest the majority of training was indeed very localized and was firmly concentrated on the airfield and the surroundings there.

The next higher frequency suggests more advance training that involved either cross country, operational, and ferry flights. There were 15 incidents outside the boundaries of the Pennfield area noted in the records. There was significant activity in the direction of Yarmouth suggestive of cross country training, 22 incidents in total and 11 incidents in the US suggestive of ferry and cross country training activities.

These incidents also suggested the area of highest concentration and boundaries where OTU34 operated that are bounded by Maine, New Brunswick and Nova Scotia. In other

words, O.T.U. 34 operated principally in and around the Bay of Fundy. There were 5 incidents in Quebec suggestive of advance cross country and operational flights of which was the loss of an aircraft in a Category A crash occurred and where the crew and the aircraft were never recovered.

The second perspective of O.T.U 34's accident record arises from principal causes and reasons. There were 127 records reviewed for probable causes of accidents. All its category types were first viewed, then grouped and parsed by a "main" or "principal" cause. Accidents found to be catastrophic where difficult to assess a main cause of failure. Sometimes there was little or no evidence at hand and only speculation as to the cause.

There may have also been multiple causes in a resulting accident for any number of reasons. So to simplify this analysis an accident cause state in the first instance was noted as the recorded failure. For example an aircraft may have had an engine failure leading to a hard landing and a collapse of the landing gear. That accident would be ascribed to engine failure.

The system of assessment may not be perfect but it sketches a path of the day to day incidents and resulting failures on the Ventura Bomber at Pennfield NB.

Not all records were complete nor were incidents necessarily totally or properly recorded.

Table 12 is a summary of the principle causes of failure.

Table 12. Summary Principle Causes of Failure O.T. U. 34 1942-1944 (All Categories)

				Total Summary (127 records)					
Year	Catastrophic	Ol.M	Ol. T	En	Tx	Col. Ac	Col. O	A.F.	Other
1942	1	5	3	9	2	1	3	1	10
1943	4	22	2	15	0	4	2	0	24
1944	0	2	1	3	0	0	2	0	11
Total by Type	**5**	**29**	**6**	**27**	**2**	**5**	**7**	**1**	**45**

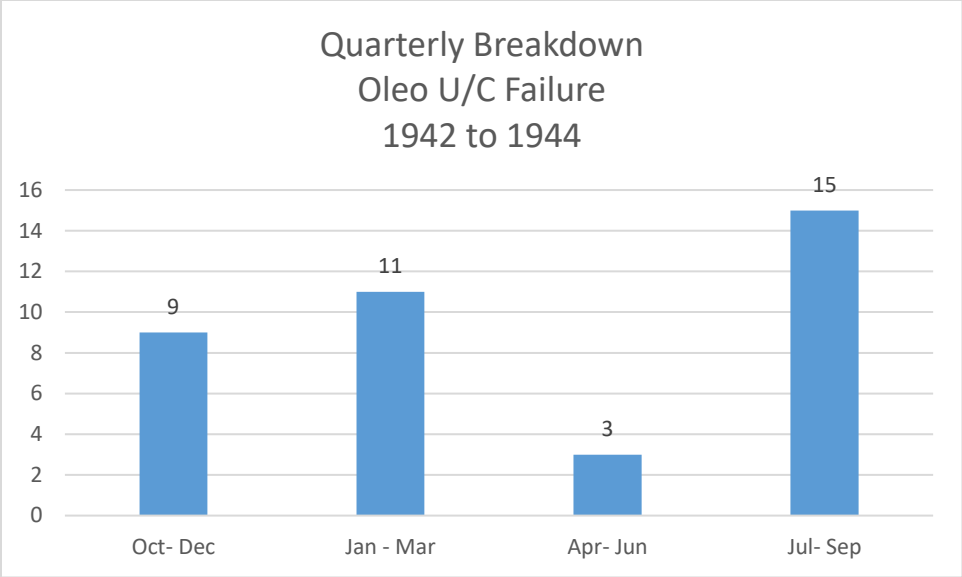
Legend
Catastrophic
Ol.M = Oleo Main
Ol. T = Oleo Tail
En = Engine
AF = Airframe
Tx = Taxi
Col. Ac + Collison other aircraft
Col. O = Collision with other obstacles
Other - largely undefined
3 records not accident summary info = 130 records reviewed

Table 12 above lists the summary of accident causes. Five were catastrophic for which little analysis was done. The majority of causes related to oleo failures either on the main (29) or tail (6) gear. Causes related to engine failure totalled 28. Twelve incidents resulted from collision either with other Aircraft (5) or other objects (7). Two incidents relayed to taxing aircraft and one with damage to the airframe.

Considering that much of the training concentrated within 30 miles of the airfield. It is quite probable that many of the accidents were concentrated on or near the airfield itself. Most common accidents resulted from stress of frequent hard landings resulting in oleo failure suggested by the frequency that failure. Much stress appeared to be placed on the airframe at the airfield in the conduct of training these pilots.

Table 12 initially recorded a total of 35 problems with Oleo failure at Pennfield. Figure 5, a seasonal perspective, includes 3 three additional records where secondary causes of undercarriage failures were overlooked and not included in the initial review.

Figure 5 - Seasonal Oleo Failure – Quarterly 1942 -1944



Thirty eight records mentioned problems with either oleo or undercarriage failure. The seasonal quarterly data of oleo failure between cool and warm periods found 20 incidents in the cool period with 18 in the warm period. This is suggestive that in the case of oleo or under-carriage failure weather was not necessarily a key variable. Such failures were just as likely to occur at any time.

Figure 5 may also be indicative though of the pounding exerted on the airframe exacted by what was a relatively inexperienced group of airmen on this particular type. It may be indicative of the delicacy of the landing system whose airframe required a smooth touch in the landing. It may also be indicative of the mismatch of mission – training, to what the aircraft was designed for – operations.

The problem though is that at some point you simply have to do both types of flying on an aircraft type if anything is ever to be accomplished. This shows the very real day to day operating pressures and difficult choices facing both government and military who basically had to use what was best, readily available and what was at hand in the conduct of the war. In the end the Ventura failure rate and deficiencies were simply accepted despite the fact that maintenance and supply problems were readily acknowledged. It was simply expedient for all to replace the aircraft and get on with the job!

A good many of incidents related to other causes that were non-specific that need further review. The remainder related to engine failure that will be discussed next. Figure 6 is a seasonal and quarterly review of engine failures that occurred at Pennfield between 1942 and 1944.

Figure 6 – Seasonal Review of Engine Failures (All Categories)

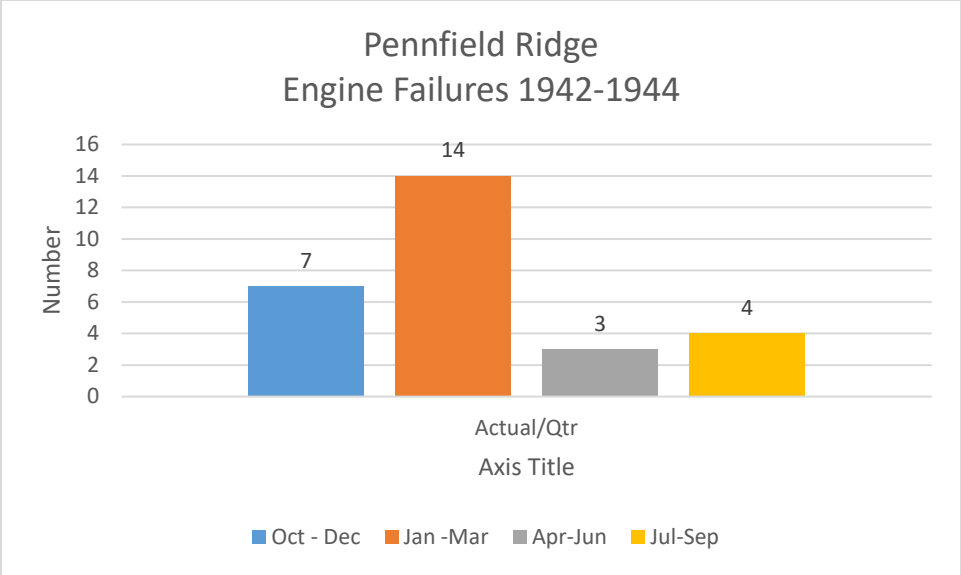


Figure 6 is indicative that engine failure was prone to occur during the cold weather cycle at Pennfield. There were 21 recorded incidents of engine failure between Oct to Mar, a cool season relative to 7 incidents of engine failure from April to September , the warm season. It is in ratio of 3:1 that is highly suggestive of a problem and possible temperamentally of the Ventura engine during cold weather use.

Finally there were 45 accidents found under “other causes” in Table 12. These were very hard to define or to provide a reason for a crash. Many notations expressed the thought that these were due to pilot inexperience but some were left totally unexplained and unresolved.

The attempted resolution of this subset 12 records provides some insight into the difficulties with ascertaining causes where there is a lack of physical evidence. There were several training flights where aircraft were lost at sea and the remains or wreckage never found.

Most notable was the loss of one Ventura bomber and crew at Point Escuminac QC in the Gulf or St Lawrence on 26 January 1943. Another was reported lost off Port Maitland, NS 13 March1943, and one missing overdue on 10 August 1943. Two may have been to youthful exuberance and unauthorized low flying 8 Feb and 26 February 1943. While other remained truly obscure with no reasons given; 3 and 25 Jun 1943. But all that was left after the fact was speculation for the reasons why.

For the most part though, the accidents were concentrated in a very tight box and for the most part, within the boundary of Pennfield's training area. Our final perspective , mission profile is found in Table 13. Table 13 is a Percentage Summary by Category Accident of all termination points of incidents that either occurred at or originated from Pennfield.

Table 13 – Percentage Incidents by Location

Annual Accident Incident rate									
1942	Cat	**Pennfield**	**NB**	**Yarmouth**	**Greenwood**	**Other NS**	**Qc**	**US**	
	a	5%	0%	0%	0%	3%	0%	3%	
	b	8%	0%	8%	0%	0%	0%	0%	
	c	30%	0%	5%	0%	0%	0%	3%	
	d	3%	8%	8%	0%	0%	10%	10%	
		45%	***8%***	***20%***	***0%***	***3%***	***10%***	***15%***	***100%***
1943	Cat								
	a	8%	6%	1%	1%	4%	1%	1%	
	b	31%	1%	9%	0%	0%	0%	1%	
	c	14%	0%	0%	0%	0%	0%	0%	
	d	4%	4%	8%	3%	0%	0%	4%	
		56%	***11%***	***18%***	***4%***	***4%***	***1%***	***6%***	***100%***
1944	Cat								
	a	10%	5%	0%	0%	0%	0%	0%	
	b	15%	0%	0%	0%	0%	0%	0%	
	c	40%	5%	0%	0%	0%	0%	0%	
	d	20%	5%	0%	0%	0%	0%	0%	
		85%	***15%***	***0%***	***0%***	***0%***	***0%***	***0%***	***100%***
Average (All years)		57%	11%	16%	2%	3%	4%	8%	100%

Fifty seven percent of 140 incidents occurred within the boundaries of Pennfield's training area. Eleven per cent occurred elsewhere within New Brunswick. These combined indicate that all 68% of all incidents occurred in New Brunswick alone. The remainder happened elsewhere.

Table 13 shows the balance of incidents, 21% in Nova Scotia, and 4% in Quebec, while the remainder 8%, the US. The preponderance of these incidents' location suggests where much of the "operational and exercise" activity occurred, bounding units on and around the Bay of Fundy.

It also affirms the "where" of the intended training took place. It also affirms the intent of the training syllabus. The training syllabus defined that 70% of the plan was to take place locally under area control that closely matches local percentage incident rate for New Brunswick of 68%. This is very indicative of the highest degree of activity where incidents occurred both in and outbound either from or to the Pennfield Ridge airfield.

We can readily conclude though that Pennfield was very busy place and was heavily engaged in the training of air crew.

Closing Remarks

Pennfield's story is incomplete. There is still much to learn and do. This only a small sketch that expands our knowledge of O.T.U. 34 only in a very small way. It is an insight into the world of O.T.U 34, of what happened, and of the conditions then that existed at Pennfield during the Second World War. But there is still much to do.

There is largely untouched story behind it. It is found in the individual accounts behind the numbers, the triumphs and tragedies, Pennfield and the surrounding community, the economies, and the life of a rural area at war. There is also the big picture of the relations and relationships between the community and the ever changing face of the military personnel who passed through Pennfield while on training. Pennfield like Debert has a lot to tell about Canada's role and effort in the Second World War. It is there for all to explore.

Pennfield's story tells the war not localized in the big cities, major ports, or overseas. It happened here, in the small towns and villages of rural Canada sometimes imperceptibly, other times as large as life and right in your face. It is an important story, the history of a Canadian communities at war and their part that they placed in making that history. And maybe that is the larger story that has yet to be told.

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[1] F.J. Hatch, *Aerodrome of Democracy: Canada and the British Commonwealth Air Training Plan 1939-1945* (Ottawa: Minister of Supply and Services Canada, 1983), 1-2

[2] Ibid Hatch,1

[3] Ibid Hatch., 64

[4] Ibid Hatch., 64

[5] Ibid Hatch 1983, pg. 1-2

[6] ibid Hatch, 1983, pg. 5

[7]Ibid Hatch., 33

[8] Ibid Hatch., 16

[9]ibid Hatch, 1983, pg. 1-2

[10] ibid Hatch, 1983, pg. 64

[11] ibid Hatch, 1983, pg. 33

[12] Canada, National Defence, Director of History and Heritage, File 74/13 No. 31 O.T.U., Debert NS 3 February 2011 , pg. 8

[13] Canada, National Defence, Director of History and Heritage, File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 1

[14] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 1

[15] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 1-2

[16] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 2
[17] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 1
[18] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 1

[19] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 1

[20] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 4
[21] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 4
[22] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 3
[23] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 4
[24] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 4
[25] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 7
[26] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 7-8
[27] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 8
[28] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 8
[29] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 8-9
[30] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 9
[31] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 9
[32] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 9
[33] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 10 (see “leg measurement”)
[34] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 11
[35] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 10
[36] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 4-7

[37] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 3
[38] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB. Pg. 4

[39] Ibid File 74/13 No. 34 O.T.U. Pennfield, NB Pg. 2-3