

Life & Times of 2864 Dr Pierre Bussi res @ RMCC & Beyond

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E3161 Victoria Edwards interviewed 2864 Dr Pierre Bussi res (RMC 1952), a member of the first class known as the “The New One Hundred”, one of the first graduate students at RMC, a member of RMC staff (1966-96) and a Professor Emeritus since 1996.



e-veritas: You were a member of the first class known as the “The New One Hundred”, which re-opened RMC after WWII. Did you have any military or flight experience prior to RMC?

2864 Dr. Pierre Bussières: I was born in Sainte-Ursule, Quebec (near **Trois-Rivières**), where I received my early schooling. I saw my first aircraft, a **Barnstormer with a Curtis « Jenny »**; it was \$2.00 for a ride. My father went but would not bring me. I decided that I wanted to fly! We moved to Montreal when I was ten. When I attended École Supérieure Saint-Viateur in Montréal, I was a member of the Army Cadet Corps. Corps membership was mandatory for all 305 students. During Grade 12, I joined Les Fusiliers Mont-Royals as a reservist. This was the total of my military experience. My total knowledge of RMC consisted of an old engraving showing cadets on the parade square, before the building of the **Currie Building**.

e-veritas: What memories do you have of RMC just after WWII?

More

2864 Dr. Pierre Bussières: When RMC reopened in 1948, it was a private school run by the Department of National Defence under a Royal Charter. The fees were b\$550.00 + \$30.00 which covered tuition, books, clothes, room and board. This was as pre-war and that in 1948 a new Ford was approximately \$1250. If you weren't too foolish, summer pay as a Second Lieutenant covered the \$330 fee for 2nd, 3rd and 4th year. The positions also were allocated "per province" to insure a national representation.

Academics /Language:

Our first year suffered a loss of 40% but many of these students succeeded after repeating first year. A loss of 25-30 % in first year engineering was common in Canadian universities at that time. The problems with our class were two folds: a) Inadequate high school preparation for an engineering course and b) 14 out of 16 Franco phones failed; Language being an important factor. Approximately 7 of these became 5 year graduates.

When I entered RMC, my oral skills were weak, however I had been exposed to English-language comics, newspapers and movies and I could read and comprehend English. Courses were ONLY offered in English. I won the English prize for "the most progress" in 1st year, a history book, which I still own. I should add that it was not necessarily the best English. Initially, the Franco phones even had to take the two hours a week of French as a second language given to the Anglo phones. This was rectified as staff became available in later years. We must note that we were allowed to write History essays in French and to write exams in French (except for English!).

The first two years of the program were identical for ALL cadets and were essentially the first two years of an engineering course (without specialty). Specialties in Arts, Science and Engineering became available in third year. These were: Arts: English, History and Economics; Science: Mathematics and Physics and Engineering: Civil, Chemical, Electrical and Mechanical.

With this system, failures in third and fourth year were very rare. Cadets received an RMC Diploma (with identification of Department) upon graduation. Those who wanted a Bachelor degree went on for an extra year at "Civy U". The land forces cadets who accepted a permanent commission were all sent to Korea and went to "Civy U" upon their return a year later. I chose McGill since it offered an Aeronautical option and this may have been my last occasion to live close to my family.

Military Training

The new RMC was based on a Tri-Service concept. Since there was no service-related differentiation among the cadets during the College year, we all wore the same RMC uniforms. As a candidate enrolled in Air Force, I undertook summer training during which I was paid as a 2nd Lieutenant, then called "Flight Cadet". The summer training was quite intensive; Pilots and Navigators received their wings at the end of the third summer (Aug 1951).

Athletics, Clubs & Activities

Although there weren't pre-existing clubs, teams, bands or activities, there were a number of cadets interested in getting them (re)started. I played soccer, hockey, floor hockey, volley ball and tennis at the intramural level and learnt to sail a Dinghy. In addition there was an annual Boxing competition in which the first year were required to participate. I lost my match! **2946**
George Whitaker (RMC 1952) and I founded an electronic radio ham club with the license V3RMC. There was an active Photo Club. We published "The Arch" monthly and the annual "Revue". By tradition, the first year was required to put on a "revue" known as "The Cake Walk"....skits at the expense of the staff.

Housing

Queens University had arranged to use the Stone Frigate as a dorm for 48-50 returning servicemen from 1948-49. All of the RMC Cadets roomed in Fort Lasalle in 1948-1949. The RMC Cadets lived in Fort LaSalle and dorms in Yeo Hall in what is now the Chapel, Chaplain's office, and trophy room (1949-1950). The cadets slept on metal beds, 6 to a corner room or 12 to a middle room. As the first group of Royal Roads Cadets joined RMC in 1950, we regained the Stone Frigate, and the construction of Yeo Hall was completed.

Women/Dating

There weren't many females on RMC grounds. There were no married cadets, no female cadets and very few females on staff with the exception of a few secretaries, seamstresses, waitresses and perhaps nurses. The shortage of housing was used by 1557 Colonel William Reginald Sawyer, PhD (RMC 1924) Director of Studies 1948-1967 as an argument to allow civilian staff to occupy PMQ's (Gate houses #1 and #2, "Cottage Row" and for those who were

single some of the suites in the dorms.). The cost was minimal and he used this as an enticement to attract teaching staff.

Cadet dates were very much as to-day, Queens' students, there were then



two Nursing Schools and a number of Kingston families with eligible daughters. There was a very efficient social network in play. **Madame Chabeau**, the wife of one of the professors, invited Francophone cadets and senior female students from the Notre Dame Convent for tea on Sundays.

e-veritas: You served fourteen years in the Royal Canadian Air Force (RCAF), mostly as a Flight Test Engineer, and retired as a Squadron Leader. Any highlights?

2864 Dr. Pierre Bussi res: The main highlight is that I felt very lucky and privileged to have been selected to serve with CE&PE. As a Flight Cadet I spent the summer (OJT) of 1951 and had a chance to work on the performance test of the North Star aircraft. I found the work fascinating and after commissioning I applied for a posting with CE&PE. This was a time of great activity within the RCAF in that we were acquiring new hardware and aircraft development was at constant and rapid. Let me simply list the different projects I was associated with:

- **F-86 Sabre V**
- **C-119 Fairchild "Packet" (Flying Box Car)**
- **P3V Neptune** (Naval Patrol)
- **CF-100 Mk4B Canuck** (wing extensions and vortex generators)
- **CP-108 Argus** (Phase 2, performance)
- **CF-105 Arrow** (RCAF Flight Test Team Malton)
- **CF-104 Star Fighter** (Evaluation team – Sabre replacement)
- **Gruman Super Tiger** (Evaluation team – Sabre replacement)
- **CT-106 Yukon** (Stability and Control Tests)

A number of short evaluations of aircrafts being demonstrated by the manufacturer:

- **Lockheed business transport**
- **Eland 540 Turbo-Prop**
- **Vickers Viscount Transport**

An added perk of being in this business is that you meet some very interesting people. Let me “drop” a few names. I met **Jan Zurakowski** and **Jack Woodman**, who were test pilots from the Avro Arrow program. In a visit to the US Naval Flight Test Center I had the chance to fly a Beech 18 demonstrating “rudder lock” with **Lt(N) Alan Shepard, then a test pilot but later** one of the original NASA Mercury Seven astronauts, who in 1961 became the second person and the first American to travel into space. I had the chance to fly a Gruman Albatross cross country with **Maj. Bruce Peterson**, whose spectacular crash landing of a lifting body Northrop M2-F2, on May 10, 1967, was used for the 1973 TV movie and series, The Six Million Dollar Man. After an extensive hospitalization, Peterson recovered from his injuries but lost sight in one eye.

e-veritas: You were one of the first graduate students at RMC. What was your research interest?

2864 Dr. Pierre Bussi res: I was posted to RMC as a Lecturer in August 1962. The College had just been granted its charter in Engineering (Arts & Science stated in 1959) hence the idea of a graduate program was quite vague. I applied for a part time admission to Queens and was accepted stating in 1963. I only took one course in “computers” which really was Numerical Methods and Fortran. I got the programming bug and did well at it. I was promoted to Squadron-Leader during the following summer. A Master Program was initiated in 1964 and I transferred my (one) credit from Queens to RMC, still as a part time student and still teaching in the Department of Mechanical Engineering. **Professor A.C. Leonard** had started some research in heat transfer at cryogenic temperatures and this was an area in which RMC (Physics Department in particular) was developing expertise and reputation. The topic interested me and it was the subject of the experimental part of my studies. I completed the requirements of the degree in early 1966 and thus became the first Master graduate of RMC, receiving my Degree from **2364 Air Commodore (Ret’d) Leonard Birchall (RMC 1933)**, then commandant.

e-veritas: You earned a PhD at Queens. What was your research interest?

2864 Dr. Pierre Bussi res: I continued working with Professor Leonard in cryogenic during the following summer and was offered a position (civil) on the staff of the Department of Mechanical Engineering. It was understood that the obtaining of a PhD would be expected. I accepted the position and

applied as part time student in the PhD program at Queens. Since Cryogenics was not a subject of interest in Mechanical Engineering at Queens, a different area of studies was indicated. The general area of Control System was of interest and the specialty of Fluidics .was very active with **Dr. Corneil** and the National Research Council was offering financial support. This was thus the area of my PhD research. The specific problem consisted of obtaining some form of "Transfer Function" for a fluidic device called "Turbulence Amplifier". Unfortunately by the early 70's the development of electronic chips had been so rapid and successful that interest in Fluidics had wained. The work was accepted and I received my PhD in 1972.

e-veritas: Since then, what have been your research interests?

2864 Dr. Pierre Bussi res: Since then my research activities have been in the system Dynamics and control area trying as much as possible to satisfy the taste of the graduate students and of their sponsors.

- Naval acoustic study, including sonar, transduction, and acoustic signal processing. In one case, I looked at the use of a Non-Newtonian gel called Carbopol, elasticity and vibration to improve the efficiency of the transmission of SONAR. The results were inconclusive.
- Feasibility studies, including the use of digital vice analog control problems in a proof of principal for General Electric LM2500 marine gas turbine produced used into the 1980s as the engines in our Oliver Hazard Perry class frigates.
- Development of an infinitely variable mechanical transmission using non-circular gearing was done in conjunction with the inventor, **Mr H. Kerr**, (W/Cret) RCAF and professor in Mechanical Engineering.
- Programming of the Bessel Functions for the PDP-11 desktop computer.

e-veritas: When were you on RMC staff? What did you mainly teach?

2864 Dr. Pierre Bussi res: I was on RMC staff from 1966 until I retired in 1996. After accepting the civilian position, I was promoted to the rank of Assistant Professor Mechanical Engineering (1966-1969); Associate Professor (1969-1975) and Full Professor (1975- 1996). I was honored by the Faculty Council of the college by being elected Professor Emeritus in 1996. I mainly taught thermal & systems dynamics, vibration, and instrumentation to undergraduate students. Over the years I supervised 15-20 graduate students.

e-veritas: You held a number of administrative positions. What were your main tasks/challenges?

As **Special Assistant to the Principal at RMC** (1974-1984), my main task was to recruit Francophone professors and promising graduate students in all

disciplines from McGill, Laval, Sherbrooke and Université du Quebec. Finding candidates to teach in the pure sciences was not too difficult since university jobs in these areas were difficult to obtain at any university but the very opposite existed in engineering. Industry was hiring as many engineers as they could find, paid better than the universities and did NOT require advance degrees. Hence the ranks of the francophone teachers in Physics and Chemistry were filled by 1978 but in engineering it was well into the 80's before we could say the same.

Head of the Second Language School at RMC (1984-5) was an administrative role in the strictest sense since I had no experience in second language teaching. Hence, my main tasks were schedules, discipline, budgets, travel, assessments (second level) and representation of the school at Faculty Council meetings.

When I was offered and accepted the position of **Head of Mechanical Engineering** in 1985, I stipulated that I would limit myself to a single term and was not a candidate for renewal in 1988.



e-veritas: The Bussièrès Prize at RMC was named in your honour.

2864 Dr. Pierre Bussièrès: The Bussièrès Prize is awarded annually to the 3rd year student achieving the highest average in design-related engineering courses, and having demonstrated singular excellence in the 3rd year Mechanical Engineering Design Course competition. In addition to having the winner's name engraved on a plaque, I present a book on the achievement of Canadian Engineers, such as a biography of **8276 Doctor**

Marc Garneau (CMR RMC 1970) or 13738 Colonel (Ret'd) Chris Hadfield (RRMC 1982).

e-veritas: You fulfilled a lifelong wish to learn how to fly at 65 years of age. Any tips or lessons learned?

2864 Dr. Pierre Bussi res: I joined up intending to become a pilot, but the Air Force wanted me to become an Air Navigator, hence the decision to go "Technical list" (Tech AE now AERE). Although I was very lucky in being able to do a considerable amount of flying, my desire to occupy the "Front" seat never died. The institution of the "recreational" permit in 1994 was the initial spark to my undertaking flying lessons. After obtaining the permit I continued for a private license and eventually for a commercial license. I have maintained my commercial license, checked out in **C-150, C-152, Cherokee, Arrow, C-172** and **Citabria**. Most of my training and flying was done with Ontario Fun Flyers (OFF) Training & Charter, at Kingston's Norman Rogers Airport (CYGK). OFF stopped operations a year ago and I have been flying with the Kingston Flying Club since.



In 2006, my **Hummel Bird**, a single-seat, single-engine, all-metal airplane flipped on takeoff and landed upside down in the muddy field just west of the runway. Since I couldn't convince anyone to lift the tail so I could walk out, I was trapped inside the tiny cabin until rescue workers arrived. I was a little bit concerned with the engine because I had engine problems earlier in the week. I was going 80 km/h and was just lifting off when I lost control. Since you can't blame anybody but yourself when something like this happens I attribute the crash to my own error rather than wind conditions or mechanical failure of the airplane. My crash won't deter me from a hobby I've

loved for a decade. I'm going flying a **Cesna 172** tomorrow and expect to do the same to celebrate my 85th birthday."

e-veritas: What else are you doing these days?

2864 Dr. Pierre Bussi res: I still like to "putter" on the car. I do a bit of wood work. I volunteer for the "Heart and Stroke" campaign. I enjoy reading. I try to keep current with programming language by doing some "C++". I enjoy the Kingston Symphony.