



## Jim Hall

# From Cubs to Mosquitoes to NACA and NASA

by Norm Crabill

Born Nov 21, 1921 in Brooklyn, NY, James Rudyard Hall was raised in Flatbush, a 1-hour bike ride from the site of Floyd Bennett Field (FBF). In 1931, at age ten, Jim, with two other boys, rode their bikes to FBF for its grand opening with a promise of a 750 plane fly-by which didn't happen because of very bad, stormy weather. Nevertheless, there were many aircraft on static display on the ground and in hangars and Jim was able to walk around them, touch them, and sit in the cockpits. Most of them were biplanes, including the fabric covered Curtis Condor. Jim said the sight of all those airplanes, and the smell of the dope, got him and he knew airplanes were it for him.



Google Maps

Location of Floyd Bennett Field - black line with arrow is Flatbush Avenue along which Jim rode his bike in 1931.

Jim read aviation magazines, including stories about WW1 in the Flying Aces Magazine, Model Airplane News and others. He built models and biked out to FBF as often as

he could. As he got older, he worked in a deli to earn money to learn to fly there, starting at age 15 in a 40 hp J2 Cub with a climb rate of 100 fpm on a hot day. FBF had 3 paved runways, but they used the grass. He soloed in that J2 and got his license at age 18.



Aerofiles.com

A J-2 Cub - type that Jim soloed in at FBF

He went to Brooklyn Polytechnic College in Mechanical Engineering with 2 or 3 courses in Aero. As a freshman, he got 55 hours in a Stearman at FBF thru the CPTP. In his sophomore year, age 19, he applied through the Clayton Knight Commission to become a pilot in the British Royal Air Force. He fulfilled a promise to his mother that he would finish two years of college before leaving for the RAF to fly Spitfires, and then, as a civilian, he took a boat bound for England in May or June of 1941. As luck would have it, that boat didn't make it to England on that trip, but put into Halifax, Nova Scotia, due to a

Cradle of Aviation Museum, Garden City, NY



A 1929 Stearman at Floyd Bennett Field in front of Hangar #5. This early type may represent the Stearman Jim got his 55 hours in basic training in through the CPTP. This photo was kindly supplied by the Cradle of Aviation Museum, Garden City, New York, after Ray Tyson suggested I call them for photos of Floyd Bennett Field in the 1930s.



Wikipedia

**DH82A Tiger Moth, similar to what Jim flew in the RCAF in Oshawa, Ontario, Canada**

advanced training in Harvards, a great airplane. In August 1942, he earned his RCAF Wings as a Sergeant Pilot after 200 hours of Canadian training, plus his civilian time. The wings were sewn into his uniform, as shown in Jim's picture here.

Based on his good performance, he was assigned to a Curtiss Warhawks Squadron in North Africa. At last, real action in the offing ... but the Air Ministry cancelled that and said, due to his good

submarine scare. So there he was in Halifax, on his own as a US citizen, for several months.

So his next step was to enter the Royal Canadian Air Force. His ground school and flight training was in Oshawa, Ontario, in Tiger Moths on skis (no brakes and not much directional control on the ground). Then on to the Dunnville Unit, also in Ontario, for



<http://harvards.com/content/view/2/27>

**Jim did his Advanced Training in the North American Harvard in RCAF insignia at Dunnville, Ontario, getting his wings after 200 hours.**

performance, he was to report to Prince Edward Island in Nova Scotia for Navigator training for a Special Forces Assignment, (the Special Forces assignment never came). Jim enjoyed Navigator Training anyway, made the most of it and became a good navigator, including celestial as well as dead-reckoning. But - time was going by and the war was passing.

He went to Glasgow, Scotland, from Halifax on the original Queen Mary with 13,000 other assorted troops. The ship had no escorts and so the trip was just a high speed dash, but luckily there were no sub sightings. So at last he was on the soil of the British Islands.

Of course, the first hurdle in Britain was more training, this time in a training squadron with the twin-engine Air Speed Oxford with 2 180 hp engines. The training was routine, with lots of one-engine-out events at one of the many airfields in the Midlands.

Finally in October 1942, he got into operations in the 407th RAF Squadron at Birchem-Newton in the Midlands, serving with lots of Canadians and some Australians and New Zealanders. Jim was the only US member in the Canadian Contingent. Each had a shoulder patch that showed his country of origin.

Now they were given lovely flying Lockheed 14's modified to the wartime Hudson configuration. With turrets and bomb bays and cruising at 140 knots, the crew consisted of two pilots, a navigator, and one gunner in the upper turret midship. With an endurance of 2 1/2 hours, they flew from "Wash" in England with two 250-pound bombs against coastal shipping near the Frisian Islands off the Dutch coast. Initially they were successful,



Wikipedia

**Action: Jim flew the "lovely flying" Lockheed Hudsons for 8 successful bombing sorties against Germans shipping near the Frisian Islands off the Dutch Coast.**

but soon the German ships were armed and provided with German escorts, and the Lockheed losses went up. Nevertheless, they were in action for three months with 30 crews and 12 planes; Jim flew 8 sorties successfully, but 18 crews were lost, so the unit was dissolved in the fall of 1942 as no longer effective.

When a German sub sank a British aircraft carrier and a cruiser in the main naval base at Scapa Flow, Scotland, and escaped, the Royal Navy demanded a standing patrol outside Scapa Flow. Ever resourceful, the RAF had 500 Whitleys, built in 1932, to which they added tanks, radar, and guns. The Whitleys flew at 120 knots with, according to Jim, the worst flying qualities ever built. Jim was assigned to fly these antiques on anti-sub patrol at 5,000 ft with their Mark I side-looking radar with no PPI display. When a target was spotted on the Mark I, the orders were to turn 90 degrees and fly directly toward the target at lower altitude and home in on it using the forward-looking Yagi in the nose and drop charges when over the target. Amazingly, it worked! Jim was checked out on the ground and then began flying patrol in the worst weather (January 1943) from a base at Wick some 150 to 200 miles

<http://www.historicaircraft.org/British-Aircraft>



**The Airspeed-Oxford-V, Jim's first multi-engine type training in the British Midlands**

[http://aircraft-list.com/db/Armstrong\\_Whitworth\\_Whitley](http://aircraft-list.com/db/Armstrong_Whitworth_Whitley)



From “lovely flying” to “the worst flying qualities...”, but 100 of those Armstrong Whitworth Whitleys provided an effective standing patrol outside Britain’s Scapa Flow Naval Base. Jim flew in this operation from January 1943 for 4 months, in night and in the worst weather; with engine failure and Me 110s to add to the problems.

from Scapa Flow. One hundred airplanes were needed to keep the standing patrol with 5 airplanes on station at any time. The aircraft were ponderous and the primitive maintenance along with the old 500 hp Pegasus engines made engine failure the biggest problem. In that case, the remaining engine could only arrest the descent into the water. Jim had a number of these engine-outs, but was able to make it back due to the lucky fact of being near a base. The Luftwaffe sent out Me110’s to add to the pilots’ problems. This made the missions especially risky because at night, the steel cowling of the two engines glowed red from the novel exhaust system and even brighter red when max power was used in the

engine-out events. There was no hiding place for these courageous pilots, even at night. These patrols lasted 4 months to the Spring of ‘43.

After that, it was back to the Midlands to fly two-engine Wellingtons in the Bomber Command. Especially compared to the Whitleys, the Wellingtons were remarkably sturdy airplanes, with steel geodesic frames even though they were cotton covered. The Wing had three squadrons with 15 planes each and the Commanding Officer was a Squadron Leader, equivalent to a US Army Major. The airfield was quite basic. There were some hangars for maintenance, which was done at the squadron level the first year, then at the Wing level. But no hangars to store the aircraft; they were simply tied down, usually in revetments. For protection, there were 50 caliber machine guns and 20 mm cannon around the field, but luckily no Luftwaffe raids ever hit the airfield.

<http://www.airforce.forces.gc.ca>



The sturdy Vicker Wellington type which Jim flew 12 sorties to the Ruhr in Germany from tie-downs in open fields in the Midlands.

<http://www.aviation-history.com/avro>



Twelve more missions to the Ruhr, this time in the 4-engine Avro Lancaster

Equipped with two 1,500 hp sleeve-valved Bristol Hercules engines, the Wellingtons had four guns in the rear and two in front and could carry 8,000 pounds of bombs at 140 kts - lovely, although the float carburetors didn’t take negative g’s well. Approach was at approximately 95 kts, with touch-down at 80-85 on the concrete runways. In all, Jim flew 12 sorties to the Ruhr in these machines .

Two months later, the Wellingtons gave way to the 4 engine Lancasters, with 1,500 hp liquid-cooled Rolls-Royce engines. They carried 16,000 pounds of bombs, 2 guns in the nose, 4 in the mid-up, and 4 in the tail, all 30-caliber. The airplane required a crew of seven. It took a month to convert, training at the same airport in the Midlands where he had flown the

Wellingtons. In two months, the unit flew twelve more missions to the Ruhr with 10% loss due to weather, inexperience, and some enemy operations. Some planes just didn't come home. All this flying in the Wellingtons and Lancasters was at night, with celestial navigation when able and with dead-reckoning when needed. It was dangerous flying; there was lots of traffic, but no lights, no radio, and no navigation beacons. The pilots used Aldis lights to signal the tower. Runways had lights on, and those lights at the many airports in the Midlands helped navigation at night that summer of '43. It was during this time that Jim was commissioned as Flying Officer rank. The missions were very difficult. The British night bombers didn't fly formation like the Americans did. Each night bomber sortie was an individual flight, with all planned to converge over the target within a 10 to 15 minute time from three general routes. But it never seemed to happen exactly like that. It was usually chaos over the targets, which were inevitably hard to find. Jim had a few close calls; he escaped from a few FW 190's and was coned (caught in several search lights) by enemy searchlights a few times. The standard enemy attack mode was from the rear and their next choice was from below as the British airplanes had no belly gunner. But Jim's crew was very good; navigator, gunners, and pilots all did lots of practice when not on sorties. They had no mid-air and never saw enemy jet fighters in these night operations.

After two months with Lancasters in the Bomber Command, Jim was moved to the Coastal Command on anti-sub patrol over the Biscayne Bay, in a re-born special wing of the 407th Squadron, where enemy subs were sinking half the ships coming across. The Germans were having a field day. Their subs were traveling on the surface at night, going fast and far and recharging their batteries on diesel, and then submerging for daytime operations on batteries, sinking allied ships far from where they had been the day before. Wing Commander Leigh's idea was to modify surplus Wellingtons with PPI equipped Mark III radar and put a 14-inch search light in the never-used belly turret. The pilot would fly at 1,000 feet until the sub was spotted on the Mark III, then he would lower the light, go in at 50 feet, and drop a stack of depth charges when flying over the sub. At first it worked very effectively - a cake-walk really. Even though the Germans began to install 20mm cannons on the subs, it was a very effective operation. In Jim's 500 hours at this mission, he got shot at some but from that point on, the Germans sank very few allied ships. The issue for the Wing was that it had to maintain a presence over the Bay at all time, and weather and night operations were the biggest source of casualties. This carried Jim through the Spring of '44 (D Day was June '44).

Jim's next stop was Cairo, Egypt, on a ferry flight in a Wellington. Stationed at Kilo 40 outside Cairo, he spent some months ferrying all kinds of aircraft around the Middle East, and as far as Bombay. He flew bombers,

fighters and anything that needed to be someplace else, including Beaufighters, Hurricanes, and Mosquitoes with just a cockpit check-out, then GO.



<http://www.aviation-history.com>

**Change of pace for Jim. From Kilo 40 station outside Cairo, Egypt, Jim ferried many different types of aircraft all over the Middle East, with only a cockpit checkout on the ground, including this Bristol Beaufighter type.**

Then the RAF was notified about a big sub threat in the Gulf of Aden; Japanese subs were sinking many Allied ships. The RAF called in a New Zealand Air Marshall and told him to generate a defense as soon as possible. He called in about 80 airplanes - Wellingtons (including Jim's), plus others, to Aden. He placed supply bases every 300 miles along the shore and set up defense perimeters to store munitions and supplies. The Wellingtons landed on the beach and the crews camped there, waiting for orders. Some were based on Sokatra Island off

<http://www.aviation-history.com>



The Hawker Hurricane, one of the types Jim Ferried in the Middle East

the Horn of Africa. In 4 to 6 months, they had eliminated that threat (end of '44).

Then, it was back to England on the ship "Ile de France" and assignment to an operational training squadron in Ayershire, south of Glasgow, on the west coast. There he trained new crews on the wonderful but obsolescent Wellingtons; that wonderful trouble-free medium bomber. The war in Europe ended while he was there (VE Day May 8 '45).

then, most other Americans had transferred out of the RCAF and RAF into the US Air Corps. Jim had offers to do that, but he would have been sent to Texas as an Instructor and decided there was just no motivation at all to do that. But with the end of the war, Jim was on the first list to go back to Canada on the way to the Orient. When the atomic bomb was dropped on Nagasaki, Jim requested demobilization, and one week later was on his way home.

By the end of the war, Jim had 3,500 hours total time in the RCAF, still an American in the RCAF. By

Back in Brooklyn, he considered the airlines, but didn't have as much flight time as many of his potential competitors, so he went back to Brooklyn Polytechnic and got that Aero Engineering degree in '48, which at that time was mostly a course in Applied Structural Mechanics. So in June 1948, he was hired by NACA. Out of money, he rode his motorcycle from New York to Virginia and planned to work at NACA for only a year, then go to an aero job somewhere in California, but he stayed. The work in the Pilotless Aircraft Division at NACA Langley was ideal - that was the Golden Era of testing aircraft configurations at transonic and supersonic speeds using rocket-boosted models with telemeter down-link. During Jim's first year, the PARD Chief, Bob Gilruth, would come by and sit down by the desk of each of his people and discuss what they were working on. (Gilruth moved to Langley HQ and later started the Space Task Group and the Manned Space Center at Houston.) The work also included, among other things, the four-stage solid propellant Scout satellite booster rocket and the early work on the Mercury program. Jim married Mary Louise Albritain in 1952; she was a "computer" at the 9-inch Supersonic Wind Tunnel in the era when computers wore skirts. They have 4 sons and 11 grand children. Jim got his Masters in Aero Engineering in 1958 from Virginia Tech by taking night school in the NACA Extension Program. Retiring in 1992 after 44 years of service, Jim finished up in the NASA Flight Research Division in the hangar at NASA Langley in Hampton working on Langley's Boeing 737 and 757 flight projects.



Wikipedia

This de Havilland Mosquito is another of the many types Jim ferried in his Middle East tour.

**Author's post script:** I met Jim in 1949 when I came to work at the PARD at NACA Langley. To me, he was one of those experienced guys who made things work around the office. I don't remember Jim talking much about his war experiences then. I saw him recently at the funeral of Hewitt Phillips, another NACA old-timer, and asked him some questions. This story, which I never knew before, is the result. It just had to be told.

**Sources:** Interview with James Rudyard Hall, September 20, 2009, at his home in Newport News, Virginia. Bill Schultz of the JGG Chapter supplied the J-2 photo, and all the other photos from the Tiger Moth to the Mosquito.