

## Test Pilots – with Ashley Morgan

13<sup>th</sup> February 2017

We were delighted to welcome Ashley Morgan and her colleague Colin to talk about the incredibly brave test pilots who worked alongside the scientists and engineers at the RAE. Ashley is the archivist for the FAST film archive and illustrated her talk with film material dating back to the early 1900s. The Farnborough Air Sciences Trust (FAST) was set up in 1994 as the RAE was going through privatisation. Its aim was to preserve the heritage of the RAE which was in danger of being lost. Included in the items preserved were literally thousands of film canisters which recorded the advances in aviation technology emanating from the RAE laboratories. Ashley's background is in TV production and she was responsible for the 6 part television series titled "Farnborough above and beyond" which aired in 1998-99. This series used some of the material from the FAST Film Archive and Ashley could see that there was a potential to commercialise the materials to help with funding the FAST museum. In 2000 she became the archivist, a role she has now performed for 17 years, and has to date generated more than £63,000 in funding for FAST.

The talk began with film of the earliest aviators, including the Wright brothers and Samuel Cody, and then moved on to the beginning of test flying which occurred in World War 1. This was primarily conducted by the Royal Navy who at that time had planes taking off from ships and then ditching into the ocean on their return. The RAE worked on methods for recovering aeroplanes and pilots from the sea. In 1917 Commander Dunning became the first pilot to actually land on a moving ship with seamen grabbing toggles hanging from the wings to stop it on deck. Unfortunately on the second attempt Commander Dunning crashed and drowned.

Between the wars the RAE experimented with arrester gear and nets to prevent planes going over the side with archive footage showing the incredible bravery of all involved both in the air and on deck. Experiments with rocket-assisted take-offs were also conducted in that period.

In World War 2 the RAE was involved in developing the jet engine and used test pilots such as John Cunningham, John Derry and Geoffrey De Havilland. At that time the RAE were also developing RADAR and this was used in the first "downing" of a German JU88 at night in November of 1940. As RADAR was a top-secret development the success of the mission was attributed to the extraordinary night vision of the pilot who became known as "Cat's eyes Cunningham". In a film interview with John Cunningham in his later years he admitted that his night vision was no better than anyone else's and his becoming a night fighter ace was much assisted by the new technology developed at RAE.



*Figure 1 - John "Cat's eyes" Cunningham*

Geoffrey De Havilland is a famous name in aviation who was chief test pilot for the De Havilland aircraft company. He was instrumental in the development of the Mosquito and Vampire aircraft and was the first British aviator to break the sound barrier in a DH108 "tailless" aeroplane. All three of the DH108 prototypes were lost in accidents including one in which Geoffrey De Havilland himself was killed in September 1946 when he lost control of the plane and his head impacted with the canopy. John Cunningham broke the world altitude record by flying a Vampire at 54,446 feet in 1946. He was to die in poverty in 2005.

John Derry was also a De Havilland test pilot in the 40s and 50s breaking several speed records and introducing new aerobatic manoeuvres. He was tragically killed at the 1952 Farnborough air show when his plane suffered a catastrophic structural failure and crashed killing 29 spectators on the ground and his flight observer.

Film clips from the 1950s and 60s showed test pilots such as Peter Twist (first pilot to fly at more than 1000 mph), John Farley and Bill Bedford who pioneered the Vertical Take Off and Landing (VTOL) aircraft that would eventually become the Harrier jump-jet.

Into the 1970s the RAE became involved in the development of flight simulators which allowed many of the new designs and engineering changes in aircraft to be tested without risking the lives of the pilots. Pilots in this era were involved in what they called "mundane" testing work such as heads-up displays, in-flight refuelling and new types of instrumentation. Pilots were also involved in aviation medicine in this era, testing things like restraints and safety gear in high speed crashes.

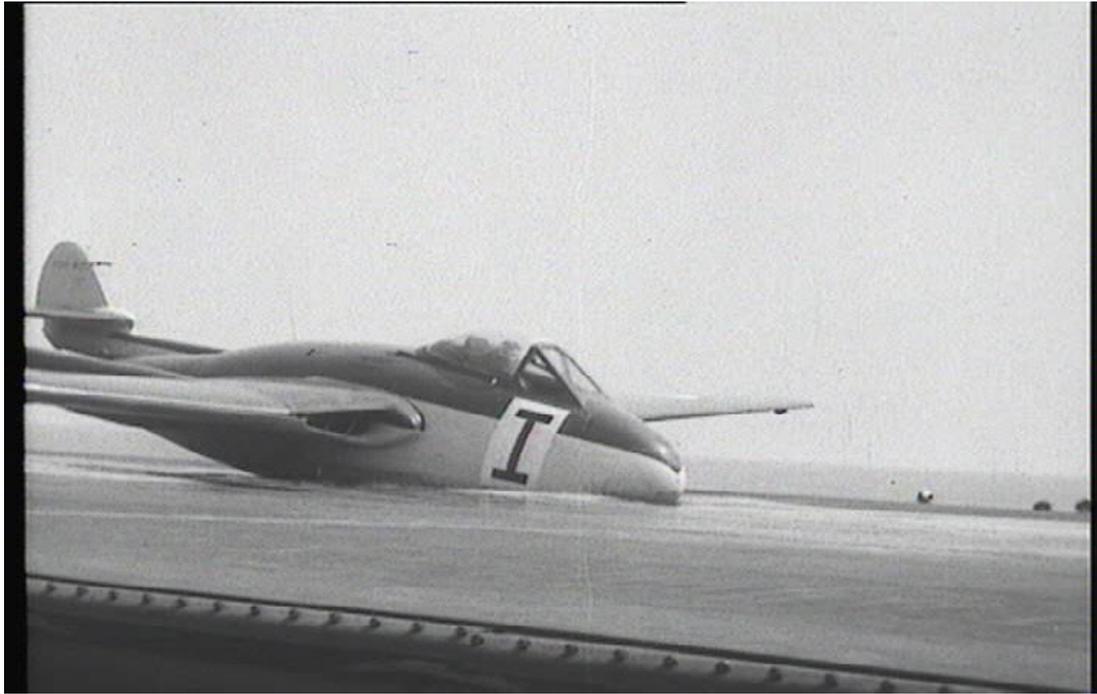
In the final section of her talk Ashley showed interviews with the man acknowledged as the greatest test pilot in the world, Eric Winkle Brown. This truly remarkable man was born in Scotland in 1919 and died just over two years ago aged 97. He started at the RAE in 1944 as the chief test pilot, his predecessor having been killed in a crash. In his career he flew more than 480 different types of aircraft of all types from fighters, bombers, sea-planes and passenger airliners. He also flew captured German aeroplanes after the war.



Figure 2 - Arrestor hook landing on a carrier

He made 2,407 deck landings on aircraft carriers, including the first two engine plane (a Mosquito) to land on one. This plane was twice the size and twice the weight of anything that had ever landed on an aircraft carrier before and had to land at 45 mph below its stalling speed. On the 3<sup>rd</sup> December 1945 he became the first pilot to land a jet on a carrier and then promptly took off again. This aircraft (a Sea Vixen) is on display at the Fleet Air Arm museum at Yeovilton. He encountered the same accident in the same aircraft type that killed Geoffrey De Havilland but survived due to his short stature preventing his head impacting with the canopy.

In another interview he described crashing a flying boat while landing in the Solent and coming up to the surface of the water under the wing several times before finally being pulled out of the sea by a rescue boat. All of this was described like it was just another day at the office for this incredible man.



*Figure 3 - "wheels-up" carrier landing*

Interviews with several of these pilots in the archives portray them as unassuming individuals who were motivated to push the technology to and beyond its limits in order to advance the science of aviation. The safety records of modern aircraft are a testimony to the bravery and hard work of these special individuals.

Ashley Morgan has five other presentations which use materials from the FAST Film Archives and we look forward to having her present one of these at a future Farnborough Society event.

More information on the film archives can be found on their web site: -

<http://www.airsciences.org.uk/filmarchive.html>