

Squadron

Buzz

Issue No 76
April 1 2017



Fleet Air Arm Squadron
linking former, current and future naval aviators



2. Airfield Quiz

3. Editor Whinge

4. Sept 11 2001

7. The Hovercraft Years

10. Bits and Pieces

12. More bits

14. World War 2 Facts

16. Test Pilots

22. Diary of Events

24. 2017 Calendar





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Buzz 76 Mystery airfield ?? Answers to the Ed please
Email owen2@comcast.net

From The 'new' Editor

April 1st. 2017

I sit here as the new 'BUZZ' editor, somewhat bemused to find myself in this august seat. I suspect that the date is probably significant in John's eyes.

I think the bait was presented during the excellent Squadron visit to the Boulton Academy at Goodwood in 2015 when I asked John (Our departed editor), that since I had just sold my Auster and had disposable aviation bound funds, how feasible would it be to invest in a Spitfire checkout? Some time later he mentioned that with his editing of the Buzz, warbird flying and domestic responsibilities, he was becoming stretched rather thin there were so few Spitfire pilots available. The bait is being jiggered a little.

The next stage was a conversation over a beer or two, when again he spoke of editing the Buzz, and the shortage of Spitfire pilots keeping him so busy, would I be interested in helping him out. Now, I have a very high regard for John as do all who know him, so as I mentally decided whether the rather splendid flying suit that was used for the Hunter displays, or the more conservative olive service suit would be more suitable for my (presumed) Boulton Academy course, said "Of course John, anything I can do to help out" "Good" said he, "You are the new editor of 'The Buzz'." The hook was set in my pitiful trembling lower lip!

Talking to him, you may hear a slightly different account, however, I only have to point out that while I sit here at my desk puzzling over this significant responsibility, John will be strolling out to fly and display his Spitfire or other interesting warbird with a smug smile lurking.

Having said all this, he did point out as a sop to the ego, that since I live in the United States, this editorship carried with it the rather grand title of

**K. Brent Owen
Managing Editor,
International Desk.**



Brent Owen

September 11 2001

Interview with Col. Rob Waring U.S. Army retd.

I met Colonel Waring at my local airfield, when he arrived asking about the availability of a hangar for his full sized Sopwith Tabloid replica, which he had built. It turned out that he was a serious student of World War one, and in particular of Commander Samson RNAS. (Later Air Commodore) In fact he has built his Tabloid as a replica of Commander Samson's aircraft.

As we came to know each other better, he casually mentioned in conversation that he was working in the Pentagon when the American Airlines (my old company) 757 hit it. In fact the nosewheel of the aircraft came to rest on the other side of the library wall from where he was standing. I asked him if he would mind my writing about his experiences that terrible morning.



His story begins.

It was a beautiful morning, crystal clear blue skies with not a cloud in sight, all was well in my world. I had just returned some books to the library and was standing there looking at a book when I felt a concussion, nothing too bad, the building shook, but no books fell from the shelves, in fact my initial thought was that it was a car bomb outside, Having served in the army for many years, such things were not totally alien. I returned the book to the shelf.

I ran towards the office to check on my people, but had to negotiate fallen ceiling and wall panels. There was an injured officer lying there, but the immediate focus was to check my office, where it became apparent was area where the damage seemed to be centred. Fortunately none of my people were to be seen in the immediate area, but there were people attempting to clear the area to get outside, and were being helped through a hole in the office wall. It was dark and full of smoke and dust, very difficult to see. A Lt.Col. and myself helped people to climb through holes and gaps in the walls, and shouted trying to

locate anyone further. After assuring ourselves that the area was cleared, we made our way outside to help where I could. When finally outside it became apparent that the damage in the area was catastrophic. Not only was the damage complete, but there was a fire raging out of control. We were told later that the aircraft had 10,000 gallons of fuel on board.

The immediate impression outside was one of calmness as we attempted to assess the situation. In the main, everyone seemed to be doing their best to help where possible. Obviously there were individuals who were very traumatised and some badly injured. Within a very short time a truck arrived with a load of backboards. Even as we were surrounded by chaos it was puzzling to me where in the world they had appeared from in such a short time. Remember, this was the Pentagon, a huge office complex, an active military base more in name than in fact, certainly not a front line base prepared for wholesale casualties. We arranged ourselves in teams of four to handle the backboards.

A three star General approached me and told me to set up a morgue. As a tank specialist, not something that was forefront in my experience to that time, but a truck arrived with large military marquee, and when the army tells you to do something, you do it. Let's face it, just a big tent the erection of which I could manage (to supervise). The initial instruction was to erect it in front of the building, but this would be in full view of the motorists passing on the adjoining road which I thought inappropriate. There is courtyard area in the centre of the complex out of sight of the general public, which is where I decided to erect it. At the time we had no idea how many bodies we might have to deal with.

By this time we knew that there had been two other aircraft involved which were the two that flew into the World Trade Centre. We had actually watched on the TV as one had hit the world Trade Centre, so we knew that something bad was happening. We were also told of at least another, perhaps two inbound and to take cover. This obviously caused a modicum of confusion at times, because no one knew exactly where the other aircraft was, or indeed how many aircraft were involved, but it was known to be heading in our direction. It was presumed either to be targeting the White House, or another one for us. It has to be remembered that at the time nothing like this had ever happened before. There was indeed a fourth aircraft heading in our direction, but fortunately courageous passengers on board tackled the hijackers bringing it down in the open country of Pennsylvania where there is now a memorial to them.

As can be imagined, we were totally involved with saving those who could be saved, and removing those casualties that we could find. Support groups were quickly organized and arrived with water and food throughout the day. The conditions were difficult until the professional firefighters and rescue personnel were on scene. We were released late that evening at something like 20:00 I think, after arriving at 06:30 or so that morning we were able to reassure our families during the day, but that was all we had time for.

As terrible as this day was it could have been so much worse. 24,000 people work in the Pentagon. The section of the Pentagon which was hit had just been renovated, and as such there were very few personnel there. They were mostly from the Navy Command Centre. There were 125 Killed plus the 54 passengers and crew. The hijackers were not included in that number since their DNA could not be verified, however there were many with terrible

injuries, mostly burns. One of the more surprising memories that remains with me, is that on the grass in front of the building at the site of the impact, there were thousands of rivets. The ground seemed to be carpeted with them. There was very little to be seen of the aircraft itself or the passengers and crew, just fragments of the aircraft. On the other side of the road there is a hotel with various antennae on the roof. All of the antennae had been cleaned off by the aircraft, but the hotel structure was not touched. There were no marks on the ground before the aircraft had hit the building.

It was a matter of some pride, that five weeks after the attack, demolition was under way. One month and one day after that reconstruction started, and that in only ten months after the devastating attack the first tenants returned to their offices in E wing. By February 2003 All offices were completed and reoccupied. The construction workers worked in two 12 hour shifts seven days a week to clear and re build 400,000 sq.ft of building. There seemed to be a general attitude of outrage rather than fear, which could be the reason for the considerable increase in recruits applying to all arms of the military.

Rob's Sopwith Tabloid

Charles Rumney Samson was one of those odd characters that the British Military seemed to develop years ago. His biography is almost in the same terms as Laurence of Arabia. He started in the Royal Navy, then transferred to the R.A.F in 1918 to finish his career as an Air Commodore. Some of his exploits were better than fiction, well worth reading. Rob Waring has made a study of his career and replicated his aircraft.



The Royal Navy seems a strange organization, in that throughout history it has encouraged, or at least allowed relatively junior officers loose to explore radical ideas. Charles Samson was one such. He was one of four officers selected for flying training, and of the four, Lt. Longmore and Lt. Samson were the first to qualify. Somehow he obtained an interview with the First Sea Lord and made a convincing case for a small air element, and promised that he would be able to takeoff from a ship in a matter of months. In January 1912 he took off from HMS Africa. A few months later he took off from HMS Hibernia whilst it was underway. Apparently he had a prickly personality who didn't suffer fools gladly regardless of superior rank, but when in his opinion he found someone worth listening to, he gave them his complete loyalty. He also developed aerial wireless, bombing and torpedo launching sights and techniques and navigational and night flying methods. He designed lighters which operated in the North Sea from which to operate Sopwith Camels, Pilots under his command shot down five Zeppelins. In

1918 he transferred to the Royal Airforce, as did his flying course companion Lt. Longmore. Charles Samson retired as Air Commodore and Lt. Longmore as Air Chief Marshall.... Dartmouth trained of course, it makes all the difference.

Tony Ashmead

Slightly different adventures

Many years ago now, their Lordships decided in their infinite wisdom that I should not be allowed to go to flying training but be sent to learn to design aeroplanes at the College of Aeronautics at Cranfield. In fact this was a ghastly mistake, because I have never been brainy enough to compete at this level but when sent on a course one does not aim to fail and after two years of horrendously hard work, I duly qualified for a thoroughly undeserved Master's degree and I wasn't bottom either! My brains have never been quite the same since, which is why I may seem a bit slow on the uptake at times.

Anyway, after a largely very enjoyable spell at sea as the AEO of 899, I fetched up in Naval Air Department, RAE. A wonderful organisation, I thought, which gathered together a mixed couple of dozen dagger engineers and scientists with nothing to do but think about Naval Aviation. The result was the steam catapult, mirror sight and its developments, harpoon and the swept blade tips of all modern helicopters. Naturally, the whole place got scrapped. Support success? Perish the thought!

My first task was to examine the Venom control system to find out why so many were rolling over off the catapult and crashing in the sea. I did find out why; they were stalling in a level attitude as they sank off the end, not that anyone believed me of course. But after the Naval Test Pilot rather bravely tried it off the Bedford Catapult and found I was right, we sent an urgent defect signal to the fleet over a bank holiday weekend. Strangely, no Venom ever crashed again in that fashion. We both got into trouble for that.

Then I managed to persuade their worships that the Buccaneer would never be successful with the puny Gyron Junior and to give it the excellent Spey, before designing and developing an auto-throttle for the Vixen, again with much support from the same NTP. We intended the throttle to operate on the port engine only, to lift that engine into a sufficiently good control response regime, requiring the starboard engine to remain at flight idle throughout. I am told several squadrons followed the port throttle movement with the starboard throttle by hand and then of course the automatics didn't work properly.

By this time, I had been reappointed, to a small group called Aircraft Research, under a brilliant but unpopular Special Merit SPSO. In the two years I served under him we never got on a stationary train; he was always just late enough to have to run madly down the platform and leap aboard. Strange really, he was a strange but most likeable man. He and our Director would go to the heads on different floors in case they should meet each other, which all goes to make departmental life easier.

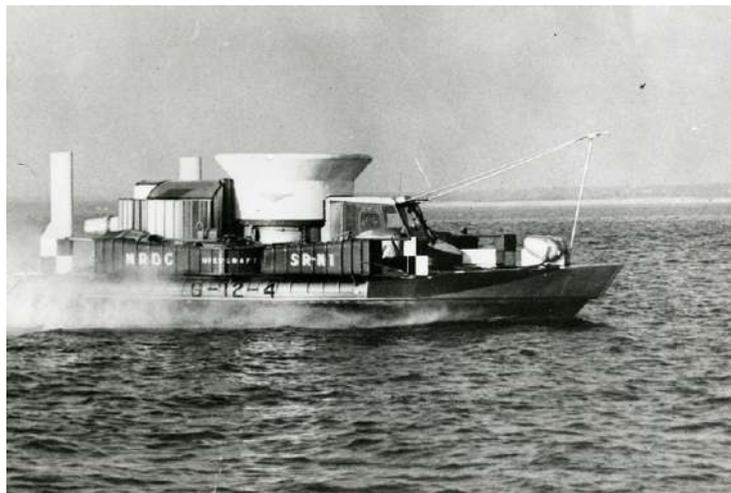
One of our interesting duties, apart from project managing a mere 7 research aeroplanes, was to receive inventors, who ranged from the serious to the nutcases, hoping for

government funding. Oh! The 1950s were such fun. One of the most serious ones was Sir Christopher Cockerell, and that brings us to the Hovercraft, in which I was to be embroiled for nearly 6 years.

The Hovercraft Years.

I was made the SRN-1 Project Manager in 1959, just in time to help implement the first channel crossing by Hovercraft on the 50th anniversary of Bleriot's historic trip by aeroplane. The only problem was how do you organise such a crossing? My solution was to go and call on the Mayor of Calais, which was all good fun and a fairly hairy crossing duly occurred on the required day.

As the development of SRN-1 proceeded, we had the idea that the unique tolerance of Hovercraft to dimensional variations could be used to advantage to add flexible extensions to the air ducts, effectively to extend the distance of the hard structure from the ground, like a tyre does for a wheel. Later dubbed "skirts", several people, one of which was me, patented the idea.



Unfortunately, their Lordships decided that they should own my patent in case it worked and "bought" my share for 10/6d; the one American dollar and one Canadian dollar required to make the patent legal there. They wouldn't give me dollar notes either in case I framed them! As time went on, development of skirts was to become one of the key areas of design effort.

The Hovercraft principle interested me very much and I thought it might prove to have serious Naval applications, so when reappointment loomed, I suggested that I should form a Hovercraft Trials group and to my astonishment, the Powers that Be said OK off you go.

We finally chose Lee slipway as being too convenient and well placed relative to Saunders Roe and Vickers to look further. We started in a very small way preaching the virtues of an idea until SRN-1 was hired for Military Trials for our benefit and we drove it about the Solent and over Browdown ranges, mainly to demonstrate the hovercraft's truly amazing amphibious qualities. Just to go a bit further, we took the current Vicker's machine across the Danube and to el Adem in Lybia, where we carried the day's beer supplies across the desert without even the froth coming out when the bottle was opened. My recollections are of the dust, hunting scorpions in the amazing Roman remains and incurring the displeasure of the Foreign Office for taking the Governor of Tobruk for a ride and accidentally running over an old landmine. Ah well, you can't win 'em all and eventually we demonstrated that one of the Hovercraft's best attributes was not exploding conventional mines.

By this time, the beautiful SRN-2 had come on the scene. An altogether more serious affair

than the first generation offerings of either Saunders Roe or Vickers and to my mind the best looking of them all to date. To reduce the “aeroplaneness” of it, SRN-2 lacked a rudder bar, so one’s feet dangled about while the “driver” wrestled with a wavy control column and wheel. I thought aeroplanes had been quite well thought out in the control department and trying to be different was a mistake. Our Army member didn’t though; he never became easy with a conventional rudder bar, thinking it should emulate bicycle handlebars and much preferred a wheel for steering.



One day I was asked by Saunders Roe if I would go to Montreal with them to take SRN-2 up the Lachine Rapids, the historic barrier to the North West Passage. Would I ever! We started by shooting the rapids with a splendid real-life Red Indian in a birchbark canoe to see where best to take the Hovercraft through the falls. Next day, the Saunders Roe Test Pilot went down with ‘flu but unfortunately got better by the time the Hovercraft attempt became due and I was relegated to honoured passenger again but I have to say that it was an exciting ride. I did manage to get a trip up to the permafrost where we could have travelled by Hovercraft for a thousand miles or more in any direction without damaging the environment like wheeled vehicles do. I never managed to follow that one up unfortunately, it is just too inaccessible.

In some amazing fashion, we had been allowed to order our own Military Hovercraft, the magnificent 100 ton , 4 engine SRN-3 by this time and much of our effort went into the development of the craft and its systems. Powerful, fast and controllable, SRN-3 was much more business-like than its predecessors. Our own SRN-1 trials had demonstrated that the craft would cross obstructions like dunes and waves better yawed than head on and the pointed bow became a thing of the past, to be replaced by the rounded snout of all subsequent machines worldwide.

In due course, the Minister of Aviation suggested a Press day at Lee and all the knobs were invited. Come the day, the wind was gusting 90 knots at the Needles and generally conditions far exceeded anyone’s experience, so we all declined to operate and went off to enjoy the splendid lunch. Mr Amery, bless him, was made of sterner stuff and told the Captain and the Chairman of Westlands that if we refused to demonstrate the craft to this audience, Hovercraft were finished. The Chairman told his Chief Test Pilot to take the new SRN-5 to sea and he would take responsibility. In true Naval fashion, the Captain told me the responsibility for SRN-3 was mine. Anyway, it seemed to me that going down the slipway into wind should be all right and we could then cross the Solent to Cowes and land on the Westland slipway in the lee of the Island, which we did after a “flypast” off Lee. All would have been reasonably well had I not suffered a major hydraulic failure in the middle, to which the N-3 was somewhat prone, which made the whole thing more exciting than necessary and nearly gave the Saunders Roe Chief Designer kittens.

Our next venture was to “militarise” the nice little SRN-5 by adding a scarf ring and machine gun at the front with a view to service in Borneo, for which we formed a sub group of the Trials Unit under Army leadership, trained by our RAF Test Pilot. I got a trip to Singapore and on to Borneo to reconnoitre the rivers for SRN-5 operations. I enjoyed a ride in a dugout canoe, complete with Gurkha rifleman sitting in the bows. In the jungle we found an RN Whirlwind squadron happily changing an engine, slinging it from a palm tree; the day when the RAF had declared all helicopter operations in the jungle had been suspended as impossible. Round the corner came an Army Colonel who kindly invited us to lunch. He took us down a track to a tent where lunch was laid complete with mess silver, all of which was subsequently lost when the helicopter carrying it decided to quit. I always did think them nasty, unreliable things, too complex for their own good.

One fine day the phone rang at Lee and the Controller’s Flag Lieutenant told me that Admiral LeFanu, a huge supporter, wished to visit Lee to be entertained. In a moment of total madness, which gives me goose pimples to recall to this day, I suggested taking him to lunch in Cherbourg. He accepted the suggestion with alacrity and wished to bring anyone from the Admiralty Board who wanted to come.



Arrangements were made with the French Navy for their reception and inevitably the appointed day arrived. Perhaps we were due a bit of luck for the day dawned flat calm and we scooted off to France at over 60 knots, with more Admirals in the back than you could shake a stick at and no-one felt ill on the way, to return blind on radar in a thick fog.



The rest is history I suppose. The Inter service Hovercraft Trials Unit that I formed at Lee on the Solent in 1961 was to last 25 years before shrinking defence budgets and rampant fuel cost inflation beat the idea in the UK Military at last. Unfortunately, I was never allowed to drive a Hovercraft again because I was not a Test Pilot; a bit late I thought. My other regret? I never achieved the World speed records that I wanted to attempt.



The 20 Most Produced Aircraft Of All Time

20) North American
T-6 Texan - 15,495
Built

19) North American P-51
Mustang - 15,586 Built

18) Republic P-47
Thunderbolt - 15,660 Built

17) Bell UH-1 "Huey"
Iroquois - 16,000+
Built

16) Douglas DC-3 - 16,079 Built

15) Yakovlev Yak-9 - 16,769 Built

14) Mil Mi-8 - 17,000+ Built

13) Mikoyan-Gurevich MiG-15 - 18,000+ Built

12) Antonov An-2 - 18,000+ Built

11) Consolidated B-24 Liberator - 18,482 Built

10) Polikarpov Po-2 - 20,000+ Built

9) Piper J-3 Cub - 20,038 Built

8) Focke-Wulf Fw 190 - 20,051 Built

7) Supermarine Spitfire - 20,351 Built

6) Cessna 182 - 23,237 Built

5) Cessna 150 - 23,949 Built

4) Piper Cherokee (All Variants) - 32,778 Built

3) Messerschmitt Bf 109 - 34,852 Built

2) Ilyushin Il-2 - 36,183 Built

1) Cessna 172 - 43,000+ Built And Still In Production

Brent Owen

We are programmed to visit Stow Maries airfield on June 23 rd. Having flown in there I can heartily recommend making the effort to support this one. The history of the place is very interesting, but as well as that, is the present concept. It is gradually being restored as a World War 1 airfield as it was in 1916. Russel Savory, the instigator of the project, is a delightful man who also has a mission to create a wildlife sanctuary on the property. He prefers to have tailwheel aircraft visiting, but in our case, we are welcome. Wheeled vehicles allowed on the airfield are limited to such as the Ford model T of WW1 period. Even the bicycles are of the era.

Commenting on a complaint from a Mr. Arthur Purdey about a large gas bill, a spokesman for North West Gas said, 'We agree it was rather high for the time of year. It's possible Mr Purdey has been charged for the gas used up during the explosion that destroyed his house.'
(The Daily Telegraph)

Rules of Thumb

It is said that the phrase comes from centuries past, when brewers would dip their thumb into the mix to check the temperature. Too hot the yeast would die, too cold it wouldn't ferment, hence, Rule of Thumb.

Basic rule of thumb....You won't remember it unless you use it.

Dew Point. To find the cloud base of cumulous clouds, subtract the dew point from the surface temperature, calculator out, divide by 4.4 move the decimal point three spaces to the right and there you have an estimation of cloud base. You can see the logic of this one. The lapse rate, or temperature drop is considered to be about 4.4/1,000ft. when the dew point number equals the temperature, thus forming the cloud base.

Density Altitude. Add 1,000 ft of density altitude for every 8.3 degrees C above standard for that altitude.

I fly a number of unfamiliar aircraft and use the following

For every 1,000ft. of altitude, true airspeed will be 2% more than Indicated airspeed.

If you don't know the best glide speed, use best climb, it will be close.

You will glide one mile for each 1,000 ft. A gliding 360 turn will take 1,000 ft. Consider this. A return to the runway after an engine failure, requires a 180 turn followed by two 90 turns!! Your old instructor had a point, don't turn back after an engine failure on takeoff.

2024 U.S. Election

The United States has just elected its first woman President. A few days after the election result, the President elect, Debra, calls her father and says "Dad, I presume that you will be coming to my inauguration"

"I don't think so, it's a ten hour drive"

"Don't worry Dad I will send Airforce One to bring you and mum, and a limousine"

"I don't know, everyone will be so fancy, and what will your mother wear"

"Oh Dad I will make sure that she has a gorgeous gown made for her by a famous designer"

"Honey, you know I can't eat those rich foods that you eat"

"Don't worry Dad, I will make sure that your food is salt free, gluten free, genetically modified free, fat free and free of anything else that might upset you."

So reluctantly, Dad agrees, and on January 20th. 2024 Debra is being sworn in as President of the United States, with Mum and Dad on the front row. Dad noticing a Senator sitting beside him, leans over and says, "You see my daughter over there with her hand on the bible being sworn in as President of the United States".

"I certainly do" whispers back the Senator.

Dad says proudly "Her brother is a Naval Aviator"

Another pearl.....

It is said that you are only young once, but you can stay immature indefinitely.



This Ford Trimotor was seen at Chino California as a candidate for restoration!

A few simple hand tools and a couple of weekends and we will have it flying



I never fail to be amazed by the lengths that people will go to in order to restore, or in this case, recreate an historic aircraft. All that is needed is the data plate, oh yes, and a rather large mountain of money.

Ford 5-AT Trimotor. Crew: three (one Flight attendant)
Capacity: **10 passengers**. Cost: \$42,000 in 1933 (\$702,711.29 in 2015, USD) Length: 50 ft 3 in (15.32 m) Wingspan: 77 ft 10 in (23.72 m) Height: 12 ft 8 in (3.86 m) Wing area: 835 sq ft (77.6 m²) Empty weight: 7,840 lb (3,560 kg)

First flight: June 11, 1926



Interesting World War 2 facts.

The first American serviceman killed in the war was Captain Robert M. Losey. He was serving as a military attache and was killed in Norway on April 21, 1940 when German aircraft bombed the Dombås railway station where he and others were awaiting transport.

The first German soldier killed in World War II was Lieutenant von Schmeling, who was a military advisor to the Nationalist Chinese (China had been at war with Japan since 1931)

Finnish snipers were some of the deadliest in the world. During the Winter War (November 1939 - March 1940), the Soviet Union invaded Finland hoping to gain Finnish territory and create a buffer zone for Leningrad. Because of the inexperience of Soviet troops and the incredible effectiveness of Finnish snipers, the USSR lost 40 men to every Finn that was killed.

In 2005, dive researchers from the University of Hawaii discovered the remains of a massive Japanese submarine, I-401. This behemoth was basically an underwater aircraft carrier and was built to bomb the Panama Canal-it carried three folded up bombers inside its watertight hangar. The huge submarine could sail 37,000 miles, or one and a half times around the world. Three of these subs were captured at the end of the war. They measured 400 feet long and 39 feet high, and could carry a crew of 144 men.

According to the AAF Statistical Digest, the U.S. Army Air Forces lost 14,903 pilots and crew in the United States. These men died as a result of more than 50,000 accidents during the course of the war. Another 1,000 planes disappeared en route from the U.S. to foreign countries.

More than 41,000 American servicemen were captured during the war. Of the 5,400 captured by the Japanese, **half died**. About 10% of those captured by Germans died.

The youngest U.S. serviceman was just 12 years old. Calvin Graham lied about his age to get into the service and was later wounded at the Battle of Guadalcanal. He was given a Dishonorable Discharge for lying about his age, though his benefits were later restored by act of Congress.

Some of the first Germans captured during the invasion of Normandy weren't German at all, they were Korean. These soldiers had been forced to fight for the Japanese army. When they were captured by the Russians, they were forced to fight for the Russian army. They were later captured by the Germans and forced to fight as German troops.

Germany officially declared war on just one nation in World War II: The United States of America.

The huge hangar where B24s were built at Willow Run, Michigan, has a 90 degree turn in the long hangar so that Henry Ford did not have to pay taxes in the next county.

Two women were playing golf. One teed off and watched in horror as her ball headed directly toward a foursome of men playing the next hole. The ball hit one of the men. He immediately collapsed his hands together at his groin, fell to the ground and proceeded to roll around in agony. The woman rushed down to the man, and immediately began to apologize. 'Please allow me to help. I'm a Physical Therapist and I know I could relieve your pain if you'd allow me, she told him. 'Oh no, I'll be all right. I'll be fine in a few minutes,' the man replied..He was in obvious agony, lying in the fetal position, still clasping his hands there at his groin. At her persistence, however, he finally allowed her to help. She gently took his hands away and laid them to the side, loosened his pants and put her hands inside. She administered tender and artful massage for several long moments and asked, 'How does that feel'? Feels great, he replied; but I still think my thumb's broken!

Progress in safety?

This is an interesting contrast. We have all been assured of the safety of flying twin engined aircraft trans oceanic, and in fact they are amazingly safe in comparison to only a few years ago. The travelling public demand cheaper fares, the bottom line is that cheaper fares require fewer engines and fewer crewmembers. None of this is ideal, but most of the time it has been working, however the proof as it is said, is in the eating...or pudding or something like that. Contrast the level of emergency as understood by the manufacturers, airlines and government authorities, which designate the procedures, of the excellent 777 with that of the four engine even more excellent 747.

B-777 (any two engine jet) sequence of events

OVERWATER ENGINE FAILURE

-

1. Crew maintains control of A/C.
2. Crew handles QRC immediate action items correctly.
3. Crew agrees upon enroute diversion alternate (SATCOM- DSP)
4. PF begins off-track maneuver. HDG SEL 90 from track in direction of nearest suitable airport
5. Crew turns on all external lights.
6. PF begins drift down. Call for MCP alt set to VNAV ENG OUT cruise alt. EO speed or 320/.83 whichever is most reasonable considering terrain.
7. PF ensures MCT, monitors A/C performance, PNF handles communications.
8. PNF declares emergency with mayday on guard, common, and/or HF as appropriate
9. PNF gives position, Flight ID, Track, Longitude/Latitude and altitude with all calls.
10. PNF requests clearance to en route alternate with GP facility; requests guard relay.
11. Crew recalls pilots on break to cockpit via PA.
12. PNF records FMC position in scratch pad to be entered on plotting chart and to be forwarded to

dispatch via MFD "MAYDAY" report or SATCOM link.

13. PNF completes checklist reference items.

14. PNF builds offset 25NM Pacific/30NM Atlantic (Offset execute or LNAV armed optional HDGSEL may be required if ETOPS alternate behind) Cross tracks below [FL 290](#) Pacific/FL285 Atlantic.

15. PNF copies clearance to alternate.

16. Crew proceeds to alternate at 325kts /mach .83 when able at SE altitude.

17. PNF communicates with DD, FA's, SAMC and Pax as required.

18. Crew initiates preparation for ditching and/or evacuation if necessary.

19. Crew prepares estimates for FIRs or diversion airport.

20. Crew plots FMC position every 15 minutes on plotting chart on line drawn from initial diversion point to alternate.

21. Crew reviews ditching procedures if necessary.

22. Crew requests RCC information via DD if necessary.

23. Crew briefs approach, evacuation potential, runway exit plan and crew member assignments as necessary. -----

B-747 OVERWATER ENGINE FAILURE

-

Sequence of events

1. Select failed engine fuel control switch to OFF

2. Continue to destination for normal approach and landing

Test Pilots of the Fifties and Sixties

Those of us flying military aircraft in the late fifties and early sixties had a fascinating time of it. In effect, we were flying the last and finest of the piston powered aircraft. Then development was progressing at such a pace with the first, second and in many cases, the third generation of jet aircraft. From Vampire and Meteor, Venom, SeaHawk and Hunter, to Lighting, Scimitar and Sea Vixen. That isn't even counting the R.A.F. V.Force. That was the squadron pilots' experience, but just consider the experimental/research test pilots.

Test pilots of the period frequently had a degree in one of the sciences, engineering, mathematics or similar. British aviation then was at the cutting edge of development in both aerodynamics and engine technology. There were a number of purely research aircraft to be flown to investigate high speed and low speed aerodynamics, as well as vertical take off and landing concepts. This was in the days of slide rules and calculators, rather than computers, which led to some very challenging situations for the pilots concerned as the accident rates of the period will attest. We are fortunate to have one of those pilots as a member of the Squadron, with a fascinating background and experience. The types of aircraft flown are impressive not just in the sheer number, but also in the wide variety of totally different concepts, from light aircraft, to piston aircraft of the thirties and forties, to jets from the very earliest, to the Lightning, Harrier, Tornado, and of all things six different models of airships and air cushion vehicles.

Our member is **Clive Rustin**. Unfortunately, Clive had two nasty falls in December, and is slowly recovering, which is why we didn't see him at our annual dinner.

Clive started his long career at Birmingham University. While earning his BSc he joined the University Air Squadron, and then progressed into the R.A.F. After flying training flew the Hawker Hunter with 111 Squadron as a member of the Black Arrows. Their 22 ship formation loop has never been repeated by any other display team.



After routine squadron postings, in 1961 he was invited to join the Empire Test Pilots School (ETPS) where apparently to his amazement he won the McKenna Trophy as the top student test pilot. This marked the start of the rest of his career in test flying.

One of the difficulties in talking to Clive is that the variety of experiences, make it difficult to know where to focus.



Fairey Delta 2

He flew the Fairey Delta 2, which at one time held the world speed record, but after that was used to investigate the 'OGEE' wing planform which eventually was used on the Concorde.

This is a beautiful comparison of the two wings. WG774 has the OGEE or Concorde wing mentioned. WG777 has the original wing.



The low pressure formed by the Vortices over the wing are perfectly illustrated here, as well as the OGEE shape of the wing as in WG774 above.

As a contrast with that came the Handley Page 115 which explored the low speed handling of very swept back delta wing, something in the order of a 75 degree sweepback. Clive told me that they never did get it to depart, and he flew it down to 37 kts when the engine power just wasn't enough to overcome the induced drag, and although still under control descended. Both of these are at Yeovilton in the F.A.A. Museum.



Handley Page 115 low speed handling

1962 – 1967 saw him as Officer Commanding aero flight at RAE Bedford. They were responsible for research on 70 different types of aircraft, of which 14 were purely experimental as previously mentioned, from vertical take off to Concorde research.



Short SC 1 vertical flight trials



Boulton Paul 111 high speed tailless delta trials



Short SB5 Unusual in that it had an adjustable wing

It was not all 'hands on' flying. Concurrently this was an era of simulator development and also of automatic landing, both of which many of us have been the beneficiary since. I think through their efforts Britain was probably the leader in auto landing development. In 1968 came his first **AirForce Cross**.

This was followed by an appointment as Officer Commanding Avionics research Flight Farnborough. This was followed by an appointment as Officer Commanding Flying at Farnborough.

Some time during this constant activity he occasionally flew with one of the helicopter qualified pilots. Then being virtually self taught, found himself flying helicopters as a matter of course. Until that is, higher authorities learned about it, and thought it might be a good idea for him to have a formal helicopter course on his record. Not the normal way of things, the favoured, but perhaps a little mundane way, always seems to be to take the flying course first, then fly the aircraft.

Officer Commanding A Squadron Boscombe Down followed until 1978. This involved acceptance flying of all the fast jets of the time, as well as avionics and weaponry systems before being released to squadron service. Principle activities at the time involved him in the Hawk clearance and shipbourne trials of the Harrier. Tornado and Jaguar trials were all in this same period. A busy fellow!

Sometime during this period came his only ejection, unusual to have only one for the type of flying and the period. This from a Jaguar resulted in a very short parachute descent of 4 seconds. Unfortunately the trip through the aircraft canopy had resulted in a significant injury which he suspects affects him to this day.

After nine years of cutting edge nonstop test flying, he then became embroiled in a rather more executive style of management in various offices. During this time came the **bar** to his **AirForce Cross**.

Then came an intriguing and complete change of pace at Ferranti, involving 'Glass Cockpit' research and development, and concurrently, of all things, airship development. These were being considered for airbourne early warning, and mine detection duties. He must be one of the few who have a commercial airship pilots licence.

There are too many types that he has flown to list, I think he said something in the order of 160, but there are some of the more eye catching.

Tiger Moth, Gloster Gladiator, Spitfire,P51,Vickers Varsity, DeHavilland Rapide, Avro Anson, Handley Page Hastings, various Hunter models, Lightning.

Then we come to the purely research aircraft:-

HP 115, Short SB5, Fairey Delta 2, Bristol 221, Hunting 126, Hawker Kestrel which was developed into the Harrier.

Helicopters :-

Dragonfly, Whirlwind, Sycamore, Wessex, Sea King, Wasp, Scout, Scout, Gazelle. There are others, but the flavor is there!

Cushion Craft....Airships :- five types.

I am the first to acknowledge that I have not done justice to Clive's career and achievements during an extremely fast and difficult, period of aircraft development. In the next issue of the 'Buzz' Perhaps I can ask him to discuss the development of various vertical take off experiments. There are just so many aircraft involved, and so many projects and incidents that they deserve a full book. This is not the venue, but I hope that I have given a taste of one of our valued member's achievements. I know that we will wish him well in the future, and hope that he will be able to join us once more at some of our 'gatherings'.

Brent Owen

Ogee Wing

I mentioned the Ogee wing when discussing the development of the Concorde wing. This was a very significant development in high speed aerodynamics. It can be seen on the Fairey Delta 2 that the leading edge of the wing is straight. The leading edge of the modified F.D. 2 referred to as the Bristol 221, is an elongated 'S'. That is where the 'OGEE' comes from Greek derivative I think.

From the research with the HP115 and others, it was found that very low speeds could be maintained when using a slender 'Delta' wing with a very sharp leading edge.

The wing we are familiar with using Mr. Bernoulli's theory, stalls at something in the region of 15 – 17 degrees angle of attack. The very slender Delta can be flown at much higher angles of attack in excess of 25 degrees. It does this by using the slender delta with a very sharp leading edge. The sharp leading edge develops a large vortex over the top of the wing. Inside the vortex as we all know is an area of low pressure. The larger the vortex, the lower the pressure; the higher the angle of attack the larger the vortex. If a wing planform can be designed to mimic the shape of the vortex, then it will be a very effective wing as far as developing lift, hence the 'OGEE' shape, rather than the straight leading edge of the Fairey Delta 2.

The disadvantage of this design is that in order to develop the lift at low speed during take off, those same high angles of attack which develop the high lift are needed for takeoff. The elevators are not very effective at low speeds, not effective enough to raise the nose high enough to develop enough lift for takeoff at reasonable speeds. The answer to this puzzle

was to use a long undercarriage leg for the nosewheel. The nosewheel for the Bristol 221 was from a Fairey Gannet. During the takeoff or approach it would be difficult for the pilots visibility, hence the drooped nose was incorporated.

Look at photographs of the Concorde during takeoff and on the landing approach, and see the results of Clive's and others during those HP 115, Fairey Delta 2 and Bristol 221 flights can be seen. Each one of those developments is incorporated in the Concorde.

Diary of Events 2017

April 22/23 (Sat/Sun) – Standards Weekend at Yeovilton

Organiser - Steve Robson sb.robson@tiscali.co.uk

A regular feature on the FAA Sqn calendar, the Stds Weekend will include ground lectures to keep our aviation knowledge up to speed, an update on the RN Historic Flight and a chance to visit the FAA Museum. The evening social and overnight stay will be in the Wardroom, RNAS Yeovilton.

May 27 (Saturday) – Search and Rescue Base MOD St Athan

Organiser – Adam Reynolds acs.reynolds@me.com

With the final demise of military Search and Rescue in 2016, UK wide SAR coverage is now provided by Bristow Helicopters Ltd using the latest technology Airbus 139 and 189 aircraft. St Athan is one of the bases. You will have the chance to look round this hi tech base hosted by ex RN pilot John Brotherton.

June 23(Friday) – Stow Maries Great War Aerodrome

Organiser – John Marriott jgmarriott@btinternet.com

Stow Maries opened in 1916 as part of Britain's defence against Zeppelin raids, but was closed in 1919. In recent years, it has been restored to its WW1 format, with its buildings housing a collection of period aircraft. There will be a guided tour and lunch in the Mess Hall. We tried to visit this aerodrome 2 years ago but were thwarted by thunderstorms. Better luck this time.

Jul 8(Saturday) – Yeovilton Air Day

Jul 26/ 27 (Wed/Thu) –824 Naval Air Squadron/Culdrose Air Day

Organiser - Tim Nicholas timfionanic@tiscali.co.uk

2017 marks the 70th birthday of RNAS Culdrose. The plan is make a two day visit to the station. Day 1 will involve a trip to the Merlin Simulator and a tour of 824 NAS, which provides naval ASW Merlin Training. Day 2 will be a full day at Culdrose Air Day.

Aug 19 (Saturday)– Summer BBQ at Kemble

Organiser – Tim Nicholas timfionanic@tiscali.co.uk

This lovely Cotswold airfield and its excellent AV8 restaurant will play host to this year's summer BBQ.

September 14 (Thursday) – Jersey Air Show

Organiser – Tim Nicholas timfionanic@tiscali.co.uk

The Squadron 'French' deployment will not take us to the French mainland this year, but to The Channel Islands, and specifically to the Jersey Air Show.

October 28 (Saturday) – Brighton Airfield

Organiser – Anthony Stevens ags8491@gmail.com

The final fly in of the year for lunch will be to this friendly Yorkshire airfield, which is also home to a collection of classic aircraft. A decent café awaits us for lunch.

November 25(Saturday) – AGM and Annual Dinner at The Arrow Mill, Alcester

NOTE

Sqn. members and guests are welcome to fly or drive to all events. Booking forms for each event on the programme will come out a month in advance.

OTHER EVENTS

Easter and Summer RN Gliding Courses that were to be held at Lee on Solent have been cancelled, or more accurately the Lee on Solent venue has been cancelled, so double check for the latest details. Yeovilton and Culdrose. Squadron members who can assist by taking students up in their own aircraft for a powered aircraft familiarisation and navigation exercise will be provided with fuel to cover those flights. Any support will be much appreciated. Gliding Course dates are shown below. Powered flying support will take place on 1 or 2 days of each course.

Yeovilton	Saturday 1- Friday 7 Apr,.....	Saturday 12 th August – Fri18 th
Culdrose	Saturday 5- Friday 11 Aug	Sunday 13 th August – Sat 19 th

Flight Commanders for powered flying support are Simon Thomas, Culdrose and Jeremy Cozens, Yeovilton. Please contact them if you want to be included in the PFS team. The good news is that CNR is supporting these courses financially this year and will fund travel and subsistence for the students. This is the first time we have received anything from public funds since 2010 when funding was cut, it should make our presence in the Naval Air Stations more acceptable and less liable to challenge. The bad news is that PNGC has had to face significant operational and funding pressures which mean that, despite their best efforts, they are now unable to provide the facilities we require. It is very sad especially as PNGC has done the lion's share of courses in the past processing at least 16 scholarships a year. In the light of this Culdrose and Yeovilton have bravely agreed to increase their course memberships from 6 to 8 meaning the total for the year will only drop from 40 to 32. It is

reassuring to note that CNR, who are keen to improve the uptake of candidates to join the RN to fly Merlin, Wildcat and the F35, have appreciated the recruiting potential these courses provide. Thanks are due to the hard working gliding clubs and volunteers.



Returning after my first Hunter flight in 45 years. Fuel can be seen trailing from the drop tanks trying to fall off, with the moderately high 'g' break. The maintenance was not nearly up to military standards.

The clever weapons simulating pod can be seen under the port wing. I was pretending to be a cruise missile attacking a U.S. Navy ship I just hoped that they remembered to simulate counter measures.