

 ROYAL  
AIR FORCE



# Spirit of the Air

Vol 3 Nos 1 & 2 2008



*An agile, adaptable and capable Air Force that, person for person, is second to none, and that makes a decisive air power contribution in support of the UK Defence Mission*



**Thousands of military personnel pass through RAF Brize Norton every year on their way to Iraq, Afghanistan and other postings around the world. The RAF has transported a total of 115,357 personnel to Afghanistan alone. See 'Airbridge reaches the parts other airlines can't', page 8.**





## Foreword

By Hazel Rice  
Managing Editor

In 2005 the Air Force Board Standing Committee charged the then Director Air Staff – Air Cdre Dick Garwood – to produce a one-off magazine reflecting the ethos and heritage of the Royal Air Force. It was published in November 2005. As Managing Editor of this inaugural edition I would have been surprised (and probably rather daunted) to be told then that *Spirit of the Air* would still be going strong and celebrating two years of success in 2008. After all, it was only intended to be a single issue, single subject publication!

Such was the popularity of that first magazine that we were persuaded to publish *Spirit* every two months. The content was expanded to include contemporary topics as well as history and heritage. We developed some regular themes – such as Airspace Matters and Leadership – but all the time aiming to make the articles interesting, easy to read and people-related. We wanted people to dip in and out of the magazine when they had five minutes to spare, but also to learn from it and perhaps use the content as a basis to pursue an interest further. Within a few months we arranged to publish *Spirit* on the internet. What had originally been developed as an in-house magazine, could

now be seen by a whole raft of browsers all over the world.

In 2006 we produced an additional issue of *Spirit* concentrating on operational articles, and in 2007 we published a Falklands edition commemorating the Royal Air Forces' role. The 90th anniversary of the formation of the Royal Air Force this year will provide another opportunity for a special edition.

*Spirit* forewords have traditionally been written by senior officers in the Royal Air Force, but I wanted to take the opportunity in the first issue of 2008 to reflect on the diversity of people that are involved in the production of the magazine. There is a hard-working team of designers whose day-job it is to translate the photographs and word documents submitted by contributors into the professional *Spirit* house style. But the success of *Spirit* also depends on individuals like those that use their own time to help with the proof-reading and to check technical details. There are also those at AIDU that print the magazine and those who distribute it. I have built contacts with people inside and outside the MoD who have been keen to write articles or to suggest ideas. *Spirit* has no team of in-house journalists. Instead, we use our powers of persuasion (coercion some would say!) to encourage potential contributors to put pen to paper. More than 130 different people have written articles for *Spirit* – some of them have written several. Without them there would be no magazine and their willingness to share their interests and experiences with readers or to use *Spirit* as a medium to educate and inform underpins every issue.

No one working in the Ministry of Defence or the Royal Air Force today will be under any illusions about the pace of change and the constant need to seek out efficiencies – indeed this issue contains an article about RAF Transformation, just one of many change programmes underway across Defence. *Spirit* is not immune from this close scrutiny and we must ensure that the style, content and tempo remain relevant to the readers we aim to reach. You are the readers – let us know what we need to do to keep the magazine fresh, interesting and readable.





## FRONT COVER

100 Squadron celebrates its 90th anniversary. Also known as 'The Boneyard' or 'The Ton', it has a long and distinguished record in the RAF. Photographed by Andrea Featherby. See 'One Hundred at Ninety', page 14.

*Inset pictures front cover, left to right:*

- Leadership: Able to lead tomorrow's recruits, page 29
- Musical volunteers, page 32
- Changing places, changing faces – RAF EOD overseas, page 10

*Spirit of the Air* is currently available on:

The official RAF website: <http://www.raf.mod.uk/downloads/sota.cfm>

The Ministry of Defence Freedom of Information Website: <http://www.mod.uk/DefenceInternet/FreedomOfInformation/PublicationScheme/SearchPublicationScheme/SpiritOfTheAir.htm>

The Defence Intranet: <http://defenceintranet.diiweb.rmil.uk/DefenceIntranet/Library/BrowseDocumentCategories/OrgsRollHist/RoyalAirForce/ChiefOfAirStaff/SpiritOfTheAir.htm>



# Spirit

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# News News News News News News News News *News from the News*

## Just William

Flying Officer HRH William Wales made his first solo flight with the RAF after just nine days' training. Prince William is being fast-tracked through the RAF's six-month pilot training course in just four months. He flew his solo at the RAF's Central Flying School in a Grob training aircraft. Later, it is planned for the Prince to fly the advanced Tucano trainer at RAF Linton-on-Ouse in Yorkshire, and finally Squirrel helicopters at RAF Shawbury in Shropshire. Training the Prince at 1 Sqn Elementary Flying Training School (EFTS) was Sqn Ldr Roger Bousfield. "It was a lot of fun. I was a bit nervous at first, but I was told to get on with it so I did. I'm still here to tell the tale and so far I haven't been billed for any damage."

**The Prince completed a round trip of about 100 miles at an average speed of 100 knots. With him is his instructor, Sqn Ldr Roger Bousfield**



Cpl Scott Robertson

## The eye in the Afghan sky

Reaper, the RAF's latest unmanned aircraft is at work in Afghanistan providing troops fighting the Taliban with a valuable 'eye in the sky'. The US-built drone is unarmed, although the capability to carry bombs and missiles is an integral part of the design. Electro-optical cameras beam video imagery back to operators on the ground via satellite links. An infrared camera means that surveillance is not inhibited by darkness. Reaper also carries laser and infrared target designating equipment. A development of the Predator UAV, Reapers are being operated in Afghanistan by 39 Sqn, which was reformed for the role.



MoD

## *Aircraft plotter back in control tower*

Wartime aircraft plotter, Joyce Whittaker discovered how things had changed during her visit to the control tower at RAF Linton-on-Ouse. Now eighty-six, Joyce enlisted as an aircraft plotter in 1941 and was on duty when Hitler's deputy, Rudolph Hess, made his fateful flight to Scotland in a bid to negotiate peace terms. During the onset of the Luftwaffe's heavy bombing raids, Mrs Whittaker served at 11 Group HQ of Fighter Command at Bentley Priory, and was later posted to Stormont in Northern Ireland. "I was what they called a filer plotter and we were the first line of defence for the country. Our job was to plot the aircraft on a special map and track their course. In those days, aircraft didn't have radio identifiers like they do now, so the only way we could tell if they were ours or not was to check the daily flying schedule of RAF movements."



Matt Clark



SAC Lauren Pope

Personnel at RAF Marham are put through their paces

## Shaping up for 2008

The RAF is shaping up with a revised fitness strategy and enhanced fitness test that is set to be implemented from April 2008. Preparations are underway to ensure that personnel from across the RAF meet these improved standards and pass the new test with flying colours. "The RAF fitness test is used to assess and evaluate the physical fitness of personnel. It provides an objective marker of physical fitness and is neither trade specific nor requires any form of physical excellence. If personnel maintain a healthy lifestyle, they should meet the required standards," says Flt Sgt Dean Coomer, a physical training instructor from RAF Marham.



SAC Bobbis Robinson

The Eurofighter Typhoon will see service well into the 21st century

## CAS: RAF remains absolutely vital

Chief of the Air Staff, Air Chief Marshal Sir Glenn Torpy, has spoken recently about the issues facing the RAF as it celebrates its 90th anniversary. "Throughout those 90 years and over the last 25 years with the Falklands, the First Gulf War, Bosnia, Kosovo and now Iraq and Afghanistan, what has clearly been emphasised is the importance of Air Power. Today, in Afghanistan and Iraq, we have fast jets such as Harriers and Tornados providing essential close air support for the troops on the ground; we are gathering intelligence, providing the airbridge to both theatres and obviously tactical mobility with the Hercules and helicopters; and we are moving troops around the battlefield. It is the totality of that capability that's absolutely essential for the whole joint force that we've deployed. I think that there's an even bigger role for the RAF today than there ever has been in the past. We're getting a number of new capabilities, more Chinooks and more Merlin helicopters; we're getting unmanned aircraft and new strategic transport aircraft – the C17. We're going to need more people to man these aircraft, and there are some areas where we lack resilience, so we may need more people to help us out in those areas."



## RAF Calendar wins national award

The RAF 2008 90th Anniversary Calendar, which celebrates 90 years of RAF Aviation, has won a prestigious award as the best calendar in the General Subject Title category in the National Business Calendar Awards 2008. The award ceremony was held in the London College of Communications in Lambeth, London, in early January. The calendar was compiled and produced by the Defence PR (RAF) Publications Editor, Squadron Leader Brian Handy, and was designed by Chris Roberts of the DGMC Strategic Marketing Graphics department. The calendar features 12 iconic aircraft operated by the RAF during the last 90 years. Each month features a different aircraft, ranging from the SE5 of 1918 to the Typhoon F2 of 2008, and includes inset details of each aircraft. The calendar also includes a centre-spread of a William Wyllie print, painted in 1918, depicting aerial combat over the battlefields of Northern France. Copies of the calendar are still available. Cheques or postal orders for £9.99 are payable to: MoD Accounting Officer. Send orders to Defence PR (RAF) Publications, RAF Uxbridge, Middx, UB10 0RZ.



# AIRSPACE MATTERS

## Military Area Radar Services 'En-route to Delivering Future Capability'

By Sqn Ldr Al Corner FMARS DIPTL

The delivery of military area radar services has come a long way in the past few decades. Many readers will remember and may even have fond memories of tours in the plethora of area radar units scattered across the UK; however, as technology has improved, the number of units has now reduced to only two – London Air Traffic Control Centre (Military) (LATCC (Mil)) in its new home at Swanwick and Scottish Air Traffic Control Centre (Military) (ScATCC (Mil)) at Prestwick.

The relationship with the National Air Traffic Service (NATS) also goes back a long way and is currently managed on behalf of HQ AIR by the Future Military Area Radar Services Integrated Project Team (FMARS IPT). The signing of a new long-term contract between the MoD and NATS in 2006 has set the scene for another exciting chapter in the military area radar services story.

### In the beginning

In 1922, a crash in France between two aircraft operating between London and Paris saw air routes established to separate aircraft flying in different directions. Croydon Airport (then the 'Air Port' of London) established 'wireless traffic control' manned by 'control officers' in 1926. This service and the use of radio became mandatory a year later. By 1929, private aircraft were to remain clear of commercial routes and by 1935 most major airfields in the UK had wireless. In 1936, the first Air Traffic Control (ATC) School was approved by the Air Ministry, which opened a government school the following year. Also in 1937, the Government-appointed Maybury Committee sat to develop a 'comprehensive Air Traffic Control organisation adequate to ensure the safety and regularity of air communications'. In 1939, the Air Ministry formally recognised the term 'Air Traffic Control'. The Second World War gave impetus to the development of radar, which would become so necessary to ATC in coming years. In 1944, the RAF established Flying Control Centres at Gloucester, Inverness, Preston, Prestwick, Uxbridge and Watnall to control aircraft operating over the UK and, in 1945, the UK established an ATC HQ at RAF Uxbridge at Hillingdon House. This was effectively the foundation of the UK's modern ATC organisation.

### The start of the MoD/NATS journey

The 'Chicago Convention', to which Britain signed up in 1944, defines three methods of managing national airspace: Single Airspace, Segregated Airspace and Joint and Integrated (J&I) airspace. The UK chose the third option as it best met the needs of airspace users and the way in which it wished to provide the mandatory Air Navigation Service (ANS). For many years, military and civil ATC have worked together to provide the UK's en-route services. The geographical proximity of civilian and military control staffs has allowed them to develop flexible and complimentary procedures that optimise the use of airspace and benefits all users including the general aviation community.

Initially, although working together under the policy direction of the Ministry of Civil Aviation (now the CAA), the civil and military operational elements were managed separately from diverse locations across the UK. In 1962, to improve efficiency, effectiveness and safety, the elements were merged to form National Air Traffic Services (NATS), a Government body jointly-funded by the MoD, the Department for Transport (DfT) and their predecessors and jointly manned by civil and military staff. Over the next 25 to 30 years, NATS made such significant efficiency improvements that, by the early 1990s, there were just three Air Traffic Control Centres (ATCCs): London, Scottish and Manchester which, (with the exception of Manchester), were joint civil/military operations. There was a separation of controlling operations within NATS; the civilian operation concentrated on high-volume, well-ordered movements within the air route structure and the military concentrated on the low-volume, but random, workload-intensive traffic outside the air route structure, essentially because this was where military aircraft routinely operated. Significantly, there was a reduction in the military staffing of NATS, reflecting the proportional reduction of volume of military en-route traffic and improvements in technology.

### Developing a commercial relationship

In 1989, the decision to privatise NATS was taken and, on 1 April 1996, NATS became NATS Ltd. An 'Operating and Cost Share Agreement' was drawn up to equitably divide the operating cost between the MoD and the new, wholly Government-owned company. As part of this agreement, jointly-funded assets were transferred to the new company and NATS Ltd became responsible for the provision of equipment and infrastructure. The decision to develop NATS Ltd into a full Public Private Partnership (PPP) led to the need to agree



Controllers in the new LATCC(Mil) Ops Room at Swanwick

Background picture: Swanwick Centre



The new Distress and Diversion Cell, Swanwick





a fully-commercial arrangement. Although the Transport Act 2000 confirmed the MoD's continued involvement in a J&I Air Traffic Service (ATS), there were negotiating difficulties. These centred primarily around price and the scope and manner of the MoD's future involvement in the company's long-term investment plan. To allow the plan to progress, Ministers approved a settlement in July 2000 covering the first five years of NATS' move into the private sector. The short-term, fixed-price Partnering Agreement (PA) left key decisions as to the extent of the MoD's participation in NATS' new centres and long-term pricing agreements to the future Strategic Partner selected to acquire a controlling interest in NATS Ltd.



Prestwick Centre

### The journey continues

A new, long-term contract was negotiated by the FMARS IPT during 2005 and finally signed in February 2006. The contract, worth around £745m over 15 years came into effect in July 2006 and provides a comprehensive managed service that will deliver a range of services to MoD controllers. The contract embraces the J&I concept and, as well as delivering capability today, also demands high levels of investment in new technologies and the delivery of advanced controller tools over the 15 years of the contract. As part of this process, the MoD has embraced the NATS 'two centre-one platform' strategy and, as a result, the next few years will see further changes to how military area radar services are delivered. The relocation of LATCC(Mil) completes a series of projects over the past six years to move the MoD operation from West Drayton to Swanwick. The development of the new Prestwick Centre in 2010 will provide important new tools and methods of operation for an enlarged area of responsibility. The consolidation of the LATCC(Mil) operation a year later will enable the MoD to operate with a common method of operations on just two different platforms by the end of 2011.



The programme to deliver the goal of two centres and one platform is complex and, for the MoD is divided into a number of key milestones:

**2008:** The relocation of the remaining military operations (Military Air Traffic Operations Room (MASOR) East and the Distress and Diversion Cell) from West Drayton to Swanwick was achieved on 27 January 2008. The move followed the successful relocation of the remaining civil Terminal Control (TC) operations in November 2007 and coincided with the reforming of LATCC(Mil) at Swanwick. To ensure the least risk and to reduce the training overhead the move was delivered on a like-for-like basis; the General Purpose/ Allocator method of operation was retained and only obsolete

equipment was replaced. The LATCC(Mil) East and Distress and Diversion Cell (D&D) tasks will remain separate from the London Joint Area Organisation (LJAO) operation until 2011 when all the tasks will be moved into a common Swanwick platform. The move of LATCC(Mil) from West Drayton to Swanwick is the first step in a series of events that will see MoD and NATS' controllers move onto a new common platform at LATCC(Mil) and ScATCC(Mil).

**2010:** The next significant step is the opening of the new Prestwick Centre planned for January 2010. The centre will be responsible for a much larger Area of Responsibility (AOR) and, in addition to meeting the requirements of the existing operations at Scottish civil and ScATCC(Mil), will also accommodate the civil Manchester operation and much of the current LATCC(Mil) NW sector and a significant proportion of the LATCC(Mil) East operation. The move will also introduce sectorised operations and a new method of operating using Tactical and Planner controllers similar to that used in LATCC(Mil) LJAO. This is a significant move for the MOD and work has been underway with NATS and key stakeholders for more than two years to jointly develop the sectors, procedures and manpower and training requirements.

**2011:** During 2011 LATCC(Mil) will consolidate into the LJAO operations room. This will be possible because of the move of the NW sector and the reduction in the size of the LATCC(Mil) East task. This will further reduce the number of systems and will complete the move towards MoD sectorised operations and the revised Tactical/Planner method of operations throughout the UK.

### What next?

The next phase of the programme is to deploy NATS' next generation ATC platform. Delivered incrementally to meet safety and operational needs, both LATCC(Mil) and ScATCC(Mil) will benefit from an advanced common platform delivering flight and surveillance data processing, future controller tool sets and improved support systems. Work will start this year to identify the type of tools likely to be required to meet the MoD's future needs, these might be designed to meet specific military tasks or could be more generic and common to those required by NATS controllers. It is difficult to predict what ATC will look like in 10 years' time; however, working together and building on a relationship which has served the UK well for the past four decades is probably the only way to ensure that military and commercial operations can continue to operate effectively in increasingly complex and congested airspace.



# AIRBRIDGE REACHES THE PARTS OTHER AIRLINES CAN'T

By Simon Mander, Air Command Media Ops

**T**HOUSANDS of military personnel pass through RAF Brize Norton every year on their way to Iraq, Afghanistan and other postings around the world. Of the total, roughly 60% are Army, 30% are RAF and 10% are Royal Navy and Royal Marines. Statistics show that the reliability of the airbridge is increasing. Between February and November 2007, 75% of TriStar flights to and from Afghanistan arrived within an hour of schedule; 85% arrived within three hours – an improvement on the same period in 2006.

But statistics can't tell us everything and the heightened operational tempo is placing additional pressure on the airbridge. Sometimes things go wrong, or the situation changes. This causes frustration for Service personnel and their families and cuts into precious leave and R&R (rest and recreation).

Senior officers are acutely aware of the problem and, in recent months, have implemented changes to improve the experience of those using the airbridge, by shortening waiting times and handling delays professionally and transparently.

There's a new coffee shop at RAF Brize Norton with extended opening hours, where embarking military personnel can buy newspapers and snacks. Computer terminals offer internet access and information displays on everything from permitted baggage allowances to routes to theatre and what to expect when you get there.

Customer satisfaction survey forms mean that shortfalls in service can be pinpointed and steps taken to put them right. And



Troops can buy newspapers to read while waiting for their flight

if there are delays, senior aircrew from that flight will, wherever possible, brief passengers face-to-face on the situation in the departure lounge.

So, is the airbridge turning into a military version of a commercial airline? Not according to RAF Brize Norton Station Commander Group Captain Malcolm Brecht, who says the changes, whilst important, make no difference to the essential nature of his business.

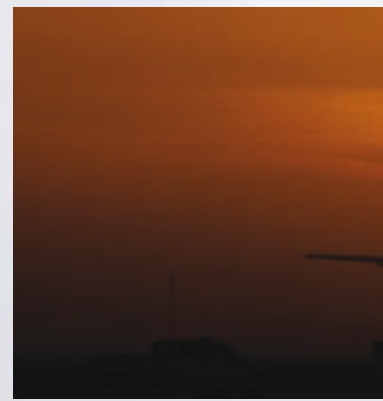
"Military airbridge operations are not like running a commercial airline as we are connected by an umbilical cord to operational theatres. So when something happens in Bastion, Basra, or Baghdad such as an aero-medical evacuation, they need us to respond: we have to prioritise.

"We do not have predictable schedules and we fly wide-bodied aircraft into hostile environments. Naturally we are very aware of the risks and take every precaution to protect those that we carry – and these factors themselves cause changes and delays."

A few facts and figures illustrate the achievements of the airbridge operation:

- Since the start of airbridge support to Operation TELIC in April 2003, the RAF has transported a total of 353,675 personnel into Iraq – the equivalent of one city the size of Leicester, twice the population of Sunderland, three towns the size of Rotherham, or four full Wembley stadiums.
- Since the start of airbridge support to Operation HERRICK in October 2004, the RAF has transported a total of 115,357 personnel to Afghanistan – more than the entire population of Cambridge.
- Over the same period, the RAF has transported 64,092 tonnes of cargo to Iraq – the equivalent of 1,025 Challenger 2 tanks or 5,341 fully laden London double-decker buses.
- It has also freighted 30,481 tonnes of cargo to Afghanistan – or 487 Challenger 2 tanks or 2,540 fully laden London double-decker buses.

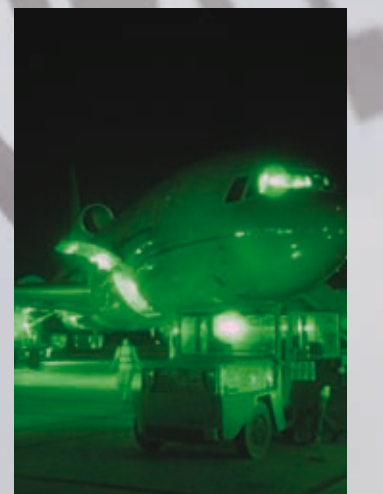
A recent survey conducted amongst airbridge users found the standard of in-flight catering and the briefing of passengers with regard to flight information,



Military aircraft make combat landings under cover of darkness



The RAF has transported a total of 115,357 personnel to Afghanistan



TriStars land at Kandahar





including delays, to be the two main areas of complaint amongst users. But there are signs of improvement, with those rating catering as 'poor' falling from 11% to 3% between July and August 2007.

"There will always be the potential for delay in moving people to operational theatres; weather, infrastructure and the threat levels might all affect plans in a way that civilian airlines simply don't have to deal with," says Major General David Shouesmith, Assistant Chief of Defence Staff for Logistic Operations, and the senior officer responsible for the performance of the airbridge.

"We might also have to re-task an aircraft at short notice for a strategic aero-medical evacuation task – which will always be our highest priority. How we handle passengers under these circumstances is key and I like to think that aircrew, and both RAF and Army movement controllers, have got much better at this over the past year or so. We should recognise the contribution that the RAF aircrews are making to supporting operations, to Afghanistan in particular.

"We should be under no illusions that the schedule of return trips for C-17 and TriStar crews is pretty demanding, and relentless. Be under no illusions that they recognise their responsibilities for providing our lifeline to operations, and are fully focused on ensuring the safe movement of people and kit safely to and from theatre."

So what do the punters think? To assess this we carried out a random survey of opinion among passengers waiting for the 1005 departure from RAF Brize Norton to Kandahar on 11 November.

First up, the RAF Cottesmore-based Naval Strike Wing who arrived at the flight pan at Brize on a bus 15 minutes before departure after being processed through South Cerney. Chief Petty Officer Ben Glenton (28), from Doncaster says: "The biggest change I've seen is that the RAF fly straight into Kandahar now instead of going via Kabul so there's not so much messing around. I'd used Brize Norton, but had never used South Cerney before. They were professional, everything went smoothly and when we got to this side all the baggage was there and nothing was ruined. The flight was good, the food was good, and the service was good."

Royal Marine Stuart Elks (23), of 40 Commando based at Taunton, on the way to his first operational tour, was also

positive. "The set-up here seems the same as a civilian airport. It's been smooth so far, everything seems to be working quite well. There have been no problems or waiting around and no delays – yet. It's a nice atmosphere, quite relaxing."

But for the Army's Lance Corporal Zoë Edwards (24) of 15 (UK) Psychological Operations Group based at Chicksands, an admin error meant her first journey through Brize didn't start too smoothly. "They didn't have me on the system at check-in and eventually worked out that I was down as a 'Mr Best,' so they had to sort that out, and it took 15 to 20 minutes to get through."

Airbridge veteran Flight Sergeant John Moorhouse (51) from RAF Henlow, who has completed four tours of Iraq and two tours of Afghanistan, said he had noticed the changes implemented in recent months. "Check-in is a lot quicker than it was and coming back last time seemed smoother. Having somewhere to buy a coffee and a paper outside normal opening hours is also very useful."

And there was a massive vote of confidence from Captain Terrill McCall of the US Air Force based in Washington DC also travelling on the same flight. "We in the US military get phenomenal support from the RAF. Its ability to implant personnel directly into theatre instead of relying on civilian charters like we do to Iraq is a distinct advantage."

So mixed views from our sample. As it's always easier to complain than praise, it seems fair to leave the last words on the subject to Group Captain Brecht. "When people criticise they should remember that roughly 8% of the RAF is based at Brize Norton so we have personnel constantly flying in and out of the same airports as others, going through the same processes and using exactly the same services. In any one year some 1,000 personnel from the station serve in Afghanistan or Iraq.

"When there's a delay passengers are not the only ones affected – the crew are subjected to it too – and some are subject to this lifestyle for their entire career. We live with the unpredictable climate in Afghanistan and Iraq every day and crews in particular can rarely tell their family or friends exactly when they will be home. That's not a complaint, I'm not looking for sympathy, it's just the way it is and we will continue to adapt to enable operations as best we can."



RAF loaders at Kandahar Airfield work with soldiers from 95 (GS)



# Changing places, changing faces RAF EOD overseas

By Sgt Dave Lowe 5131 (BD) Sqn

The phrase 'Other Operations' or 'Ops' mentioned in crew rooms across the RAF would probably have most people stopping 'mid brew' and imagining another routine detachment in some far off country, watching a 'chuff chart' run down to single figures, not forgetting specific pre-deployment courses (and the ensuing issue of even more kit).

Any stereotypical perception is not arrived at without some elements of truth, but as in life there are always exceptions to the rule. 5131 (Bomb Disposal) Squadron could be described as one of those anomalies. As the name suggests the role it provides is quite specialist in nature and is often misunderstood by the 'only the Army do Bomb Disposal' school of thought. There are currently Explosive Ordnance Disposal (EOD) teams in commonly known detachments such as Iraq and the Falklands. Here, the legacy of campaigns past provide years and years of work, whether it be removing dangerous ordnance, providing Immediate Response Teams (IRT) with a minefield breaching capability, or assisting the security services in weapon seizures and searches. In fact all recent campaigns have involved RAF EOD in some form or other to the extent that armoured EOD teams were attached to the



5131 Team with a New Zealand operator remove a 240mm mortar

US Marines as part of the initial spearhead during the war fighting phase in the latest Iraq conflict; in 2004, teams were also operating in Baghdad assisting the intelligence-led weapons searches.

I was approached to write this article a while ago and initially was tempted to focus on the Squadron's work in Iraq alongside all the other various units from all three services in the British Military, all of which – despite operating in harsh challenging conditions – are held in professional high regard by other nations. However, the opportunity presented itself to write about some of the Squadron's involvement in the Balkans. Having been deployed to Kosovo in 2002 under the banner of KFOR (Kosovo Force) and five years later to Bosnia as EUFOR (European Union Forces) in 2007, this allowed me the opportunity to see how the Balkans has changed over the years, or in some cases, struggled to move on.

## 1999 'Armour'

RAF EOD initially moved into Kosovo in June 1999, crossing the border from Macedonia in their armoured Combat Vehicle Reconnaissance Tracked (CVRT) Spartan vehicles as part of the initial troop move. The subsequent operations were conducted from requisitioned abandoned buildings such as factories and garages. Typical tasks were to include rendering safe an array of weapons from grenades and small arms to large Air-Dropped Weapons (ADW) originating from the Former Soviet Union (FSU) and the NATO countries. Tasks came in thick and fast at this point and would be on a priority basis: even on the drive in, the teams were expected to use their vehicles to 'route prove' the main supply routes into the country and some of the first tasks involved clearing BL755 sub-munitions to allow the convoys to continue. As a sobering note, these particular sub-munitions had historically been the last item to claim two lives of personnel on the Squadron during routine clearance operations in Scotland during 1982. The emphasis at this point was the preservation of life followed by the preservation of property, both essential principles in EOD operations. As will be



On a mission in Iraq



Moving into Kosovo from Macedonia in armoured CVRT Spartan vehicles







Accommodation circa 2002 in the shadows of bombed buildings



Weapons cache including an M59 rifle and ammo

seen later, the environment became more passive over the years, and whilst these principles remained, other elements such as preservation of forensics, and intelligence gathering started to become more prevalent as the environment and situation allowed. This was probably the advent of a new era for RAF EOD with the traditional cold war 'fortress air base' role being moved aside to see a more diverse 'expeditionary' approach, requiring the teams to integrate more than ever, not only with the three arms of the British military, but with other nations. As an example, a RAF team found itself working alongside a Russian team on an American unexploded bomb – probably not a situation imaginable 10 years earlier! Other rewarding work would include the clearing of schools, ensuring that they were safe from booby traps and ordnance and thereby allow the return of local children to education.

### 2002 'soft skin'

Three years on saw RAF EOD again with a team in Kosovo at Pristina. Operations had moved on slightly to a more structured base with EOD teams now having the comparable luxury of 'Corimecs' for accommodation and a fixed base to operate from. The vehicles used reflected the shift in environment with 'soft skin' Wolf Land-Rovers being the transport of choice, plus body armour and weapons were carried as a matter of course. Typical tasks involved more cooperation with the Civil Police following finds of weapons or explosives or even altercations between ethnic groups when, unfortunately, on some occasions, a neighbourly dispute could lead to the death of individuals after a grenade or small arms attack. This was quite common as historical violence was not easily wiped from memories and holding weapons and grenades in your house as a self-defence measure was seen as the norm by the locals. What remained the same was the legacy of dangerous ordnance that continued to be unearthed despite the time passing since they were fired, dropped or in the case of mines, placed. EOD assumes a 10% failure rate for weapons and when a single weapon may contain 147 sub-munitions, and vast amounts of weapons have been dropped, the maths do the talking and highlight the extreme dangers and quantities presented. As mentioned earlier, the emphasis had changed from three years previously and great effort was made to be forensically aware wherever possible and to take every opportunity to feed intelligence back into the EOD system in an effort to enhance future operations.

The country was improving, despite money being short. However, most people who have been posted to the Balkans will be familiar with the sight of cottage industries of car washes and pirate CD stalls on most street corners – money-making opportunities were rarely missed, legal or not! By this stage Non Government Organisations (NGOs) were active across the Balkans in a wide array of tasks such as reconstruction, aid work and mine clearance. Generally, things had improved with only the odd surge: in mid-tour, a car bomb was used to target a political leader in the centre of Pristina with no regard for public life. This was a reminder that exceptions will always exist and that the current peace was fragile at best!

### 2007 mentoring and monitoring

Five years on under the EUFOR remit, I found myself at Banja Luka in Bosnia. The environment was now passive to the point where the EOD team was only two people in a white fleet Land Rover with weapons left in the armoury unless required for specific operations. Body armour and helmets were carried, but purely as part of the team kit, should a minefield breach be required. Tasks were few and consisted



Pristina Hillside after extensive bombing

mainly of any Ordnance issues that affected the EUFOR troops. A change in attitude was evident in the daily deposit of weapons and ordnance in the 'amnesty pit' adjacent to the main gate. Previously, individuals were aggrieved to hand over such items, but people were now older and wanted peace and must have felt the future was more secure; although not forgotten, maybe memories were beginning to fade.



Walking around the town centre in Banja Luka was akin to any busy Saturday in the UK. People were busy about their business in a clean, friendly environment with only the odd slogan apparent as a reminder of some background hate. While working in more remote areas, the arrival of uniformed EUFOR troops in a café could sometimes lead to people quietly leaving, a subtle reminder of some unease still present in some rural enclaves. As before, some things were the same, the legacy of the violent past was ever present in the form of mines and ordnance. People were often killed when they strayed into minefields, or by ordnance, which was now more than 10 years old and started to degrade to a point where it became dangerous and safety features failed.



Bomb tail still present years later



1,000lb bomb discovered close to a village

Emphasis was now on assisting and monitoring the local authorities. EUFOR would not be there forever and the various agencies would have to 'cope alone'. For EOD this involved working closely with the Civil Protection Agency (CPA), essentially the civilian EOD team working as a sort of council department with a specialist role. The small team were hard-working individuals with a massive area to cover in just two 'past their best' Land-Rovers and with minimal equipment. Often the explosives recovered would be retained and used on future task as demolition charges. Despite the shortfalls, the team were ever positive and professional and regularly would have tonnes of explosive items to destroy on their monthly demolition. Often the EUFOR Team would act as advisors if the CPA (Coalition Provisional Authority) were unsure of how to deal with certain items. In one case, three large weapons had lain next to a farmers house for five years and with a local killed in the vicinity that was put down to mines, the items had been left as unrecognisable. As Air-Dropped Weapons specialists, we were able to identify the weapons down to type and serial number and identify that the local was most likely killed by a sub-munition from within the weapon. Following EOD procedures, the items were declared safe and removed by the CPA and the locals were advised to be on heightened alert for further sub-munitions. By being available to provide specialist advice, a task that had been open for five years was closed! Being one of the most mined countries in Europe, part of our task was to man the Mines Cell when it was disestablished during the Military drawdown. This involved teaching mine extraction procedures to all personnel entering theatre and went to prove the requirement for all EOD teams to be cross-trained in all matters, while retaining its single service specialities. This is a tribute to the success of Joint Service EOD Training making 'multi-skilling' possible.

Another sizeable task was to liaise with the 21 large police stations across the North of Bosnia. Unlike British police stations, the police would routinely accept weapons and ordnance from the local population or hold items as evidence in cellars, store rooms or even offices. Some of these items were extremely dangerous to move or handle and made even entering some rooms an extreme risk. It was common to find a room in the town centre packed with a mixture of mines, grenades and loaded weapons awaiting collection by the CPA on an *ad hoc* basis. A great amount of work went into routinely



Some storage conditions encountered in police stations



The EOD teams during Tourex handover





visiting all stations and giving advice on segregation, identification and handling. This culminated in a seminar with the police commissioner's backing in which the CPA and the police could meet to discuss problems and solutions. A presentation was given on our findings and structured advice given on the way forward. It was rewarding to leave five months later knowing that, over a series of detachments, the police stations had gone from being potential accidents waiting to happen, to being safe harbour areas, by no means to UK standards, but as close as possible with the minimal resources available.

#### The future?

In summary, what have I learnt through this passage of time on EOD? Well, a few lessons spring to mind: firstly, the requirement for a modern EOD team to be able to diversify in different roles from aggressive strike operations to a more subdued mentoring, advisor role, requiring tact and tolerance, but never forgetting how quick you may have to revert back should it be required. Secondly, that EOD allows the opportunity for immensely rewarding work with an inordinate amount of responsibility. Few others of similar rank, across all Services, would be required to make on-the-

spot threat assessments and decisions, with such far reaching consequences that affect lives and sometimes political undertones. When working alongside translators and mentoring foreign assets, as has been the case with Iraqi and Bosnian EOD Teams, operators rarely have the luxury of a fault-finding chart or triple-checked risk assessments; ultimately experience is key, regardless of the rank worn. While the Joint Service training route provides excellent cross-training on all EOD matters, each Service will always retain its speciality, (in the RAF's case, Air-Dropped weapons) and should not be afraid to seek advice or pass on knowledge to other services accordingly. Only, with all those involved accepting 'jointery', will it work as we are aware that 'in the right place one drop of oil can contaminate a whole tank of water'. Lastly, I believe expeditionary operations are the future, with a smaller specialist force. I am sure wherever the next challenge lies, the Joint Service EOD community will respond with professional dedicated personnel, a fact demonstrated by the long list of awards received by JSEOD personnel over the years. 5131 (BD) Squadron's motto sums up the RAF's EOD role: *E Noceatibus Inocentia* – roughly translated as 'To make the harmful harmless'.



Inspection of a much improved police station



Demolitions on the local range near Banja Luka



All images photographed by Sgt Lowe, or in his presence



# One Hundred at Ninety

By: Dr Keith Ellis BSc, MSc, PhD, and Air Cdre Norman Bonnor FRIN, FRAeS, RAF, (Ret'd) of 100 Squadron Association

Last year marked the 90th birthday of 100 Sqn, also known as 'The Boneyard' or 'The Ton'. The Squadron has a long and distinguished record in the Royal Air Force and has been in front-line service for more than 84 of those 90 years.

Formed as the first specialist night bomber squadron in the Royal Flying Corps, 100 Sqn was officially mobilised at South Farnborough on 23 February 1917 under the command of Major M G Christie. The Squadron was equipped with FE2b aircraft, and departed for the Western Front in March 1917. Active offensive operations commenced early in April 1917 within a few weeks of the Squadron arriving in France. In August 1918, the old and slow FE2bs were replaced with the Handley Page 0/400 twin-engine aircraft with a greater range and bomb load permitting offensive operations deep into the German industrial heartland. The original Squadron 'standard', reputedly stolen from a brothel in Nancy, formed the basis for the Squadron crest that formally came into being in 1936.

At the end of hostilities in November 1918, Trenchard commented that "100 Squadron had been one of the great squadrons of the war and that he had been proud to have had it under his command". He exhorted the CO, Major Gordon Burge, to make sure that 100 Sqn 'kept it going' and for the Squadron members to recognise 'what a squadron they belonged to'. The

Squadron was retained in the newly formed Royal Air Force, and operated in a variety of roles between 1919 and 1930. By 1930, the Squadron was based at Donibristle in Fife, equipped with Hawker Horsley aircraft and operating in the torpedo-bomber role.

In 1932, the Squadron was re-equipped with the Vickers Vildebeest, which had been designed specifically as a torpedo bomber. In December 1933, 100 Sqn was posted to RAF Seletar in Singapore.

Japanese forces invaded the Malayan peninsular in 1941, and pushed southwards. Along with ground and naval forces, 100 Sqn fought in vain to stem the Japanese advance. On 26 January 1942, the Vildebeests of 100 and 36 Squadrons twice attacked a Japanese invasion fleet that had been sighted north of Endau off the Malayan coast. The slow and vulnerable Vildebeests were no match for the Japanese Zeros and terrible losses resulted in 100 Sqn being decimated to the point that it was no longer a viable fighting unit. Many 100 Sqn personnel were captured, and suffered severely in Japanese POW camps. The remnants of the Squadron escaped through Sumatra to Darwin in Australia to form the nucleus of 100 Sqn Royal Australian Air Force. This RAAF Squadron adopted the same crest, and fought with distinction during the Pacific War.

The Squadron was reborn at RAF Grimsby (Waltham) in December 1942 and was equipped with Lancaster Mk III bombers. The Boneyard took part in the Bomber Offensive of 1943 to 1945, dropping more than 18,000 tons of bombs in 3,948 individual sorties. This enormous effort came at a high cost with the Squadron losing 113 Lancasters and 593 young men killed in action. As World War II ended, the Sqn also took part in Operation MANNA dropping food to the starving people of the Netherlands, and Operation EXODUS to bring home POWs from Germany.



Major Christie, 1st 100 Sqn CO



100 Sqn Handley Page 0/400



Major Burge, CO, 1918-1919

First formal 100 Sqn Standard





Between 1946 and 1954 the Squadron, equipped with the Lincoln bomber, was based variously at Lindholme, Hemswell, Waddington and Wittering. During these years, the Squadron was deployed in active service roles to Malaya, Egypt and Kenya.



Lincolns over Singapore

During this time, and under the command of Wg Cdr (later Air Vice-Marshal) John Herrington, 100 Sqn was the first 'V' Force squadron to carry out a live airborne launch of the Blue Steel by an operational crew. Shortly afterwards the Squadron also won the Laurence Minot Bombing Trophy using the Blue Steel missile.

With the Royal Navy taking over responsibility for the UK nuclear deterrent, The Ton was disbanded in 1968, but reformed for the second Canberra era with Canberra B2, PR7, E15 and TT18 aircraft at West Raynham in 1972, and later moved to Wyton. The Squadron operated in a variety of roles including playing enemy for fighter squadrons, banner target towing, training of fighter control officers, air defence exercises and simulation attacks on NATO shipping.



100 Sqn Hawk



On dispersal

In 1954, 100 Sqn entered the jet age re-equipping with Canberra B2 aircraft. It was a main force squadron of Bomber Command, and was also equipped for trials work with Bomber Command Development Unit (BCDU). The Squadron received its first standard from Air Marshal Sir George Mills, AOC-in-C Bomber Command, on 21 October 1955. Sir George had served with 100 Sqn in 1927 flying Hawker Horsley aircraft. During this period the Squadron received the Freedom of Stamford, and to this day carries the blue and gold chequers of Stamford on its aircraft. Whilst the Squadron continued trials work with BCDU at Wittering, a Photo Reconnaissance Flight equipped with Canberra PR7 aircraft was formed at Wyton, under the command of Sqn Ldr Douggie Hammatt specifically to take part in the Operation GRAPPLE H-Bomb tests at Christmas Island between 1956 and 1957. Although 100 Sqn was disbanded in September 1959, it was reformed at Wittering in May 1962 with Handley Page Victor B2 aircraft as part of the 'V' Force Nuclear Deterrent. The Victors were equipped with the Blue Steel missile.

In 1992, the Squadron re-equipped with Hawk T1 aircraft, and early in 1994 moved from Wyton to Finningley. August 1995 saw The Boneyard move to its present home at RAF Leeming.

In its current role, 100 Sqn is responsible for ensuring that front-line Royal Air Force squadrons are able to deal with any operational scenario, which may be encountered in terms of defending the United Kingdom, or meeting the demands associated with expeditionary operations. Wg Cdr Darren Legg, the current Boss of The Boneyard, explains that the Squadron has come a long way from the Cold War tasks of the 1980s. "The Squadron now has such a varied task, and the Hawk is such a versatile and reliable aircraft. We provide intercept training for all RAF fighter squadrons, including those re-equipping with the Typhoon, and fly many sorties



Canberras (mostly 100 Sqn) at Wyton late 1980s



for the Fighter Control School at Boulmer. We are frequently tasked to fly dissimilar air combat sorties with other NATO air forces using different aircraft types. We still carry out aggressor training with the Chinook and Hercules in addition to our work with the fighter jets, and we train Forward Air Controllers to ensure that they are completely ready to face overseas operations; the flying is fantastic and there is lots of it!"

Flt Lt Tony Horrigan, who has been with 100 Sqn for about a year, notices a considerable difference from his former front-line roles. Tony says that "100 is more about providing a service, which is a huge challenge for us because it is so varied. In the morning, we could be flying in conjunction with the School of Fighter Control, and in the afternoon we can fly a four-ship low-level sortie in the Scottish borders, followed by supporting the Army with some close air support training." Tony adds that the detachments undertaken by the Squadron are wide and varied when compared to those undertaken by front-line squadrons.

Another vital aspect of 100 Sqn's work is that of the Navigator Training Unit (NTU). The NTU is under the command of Sqn Ldr Martin Ring, and he tells us that "the NTU is responsible for phase two training of all fast jet Weapons Systems Officers (WSOs) for the GR4 and F3 fleet. Officers come to us when they have been in the RAF for around 18 months. Some arrive with a 'student mentality', and it is part of my job to continue their officer development in that we have to develop their leadership skills in addition to their navigation and airmanship capabilities." To achieve this duality, Martin Ring has designed a training programme that integrates the NTU trainees with the rest of the Squadron, thereby ensuring that they become junior officers in the Royal Air Force as well as trained aircrew. The course is intensive, and is designed to take around six months, but it can last up to nine months depending on weather conditions and of course student ability. Students plan for sorties, and fly two or three times each week.

Learning to fly in the Hawk is a major experience for the trainees, most of whom

will never have flown at such speeds. Flt Lt Sarah Shekhdar joined the NTU in November 2006, and the memory of her first flight is still very vivid in her mind. Sarah, who is 25, told us that "it was a lot faster than I was used to, and the view was just amazing. It felt like it was my first real flying". Flt Lt Clair Birch, who joined 100 Sqn in April 2006, says that 100 was her first 'proper' squadron and the first time that she felt properly integrated; a joint crew room, she says, works well because you are not treated like a student.

During the 90th year of 100 Sqn, the BBMF Lancaster, PA474 was refurbished and repainted as 'Phantom of the Ruhr'. The Phantom, as EE139, flew more than 30 operations with 100 Sqn often under the command of Flt Lt Ron Clark DFC. This aircraft, as part of 'C Flight', transferred to 550 Sqn at Elsham Wolds where she went on to complete 121 missions. In April 2007 PA474 was 'rolled out' at BBMF Coningsby as the Phantom, and she was unveiled by no less a person than Ron Clark himself. More than a dozen 100 Sqn Lancaster veterans were present at the ceremony, which was a memorable and nostalgic occasion. Ron Clark presented Flt Lt Ed Straw, the current Lancaster pilot, with his WWII battledress tunic!

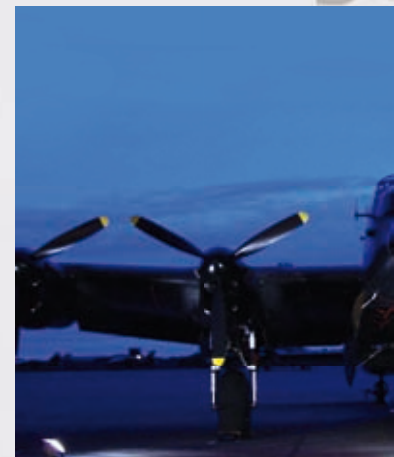
In June of 2007, the 100 Squadron Association and 100 Sqn held a Reunion party at RAF Leeming to celebrate 90 years. During the afternoon of 22 June, 'Phantom of the Ruhr', flown by Flt Lt Ed Straw and his crew arrived over Leeming escorted by five 100 Sqn Hawks (led by the Boss) and carried out a splendid display for us. She landed and taxied into the squadron dispersal, and after shutting down, our Lancaster veterans, including many from Canada, were endlessly photographed under her nose. Our celebration dinner was held in the 100 Sqn hangar, and it was made even more memorable and atmospheric with the Phantom parked at the hangar and doors floodlit from below.

Wg Cdr Darren Legg provides an appropriate conclusion to this short article. He says: "2007 has been an exciting year for 'The Ton' as we celebrated our 90th birthday; 100 Squadron has a long and distinguished



100 Sqn Lancaster veterans at the 90th reunion, RAF Leeming, June 2007

Phantom of the Ruhr parked at the hangar doors and floodlit from below, June 2007





**Background: Hawk and Typhoon (17(R) Sqn)**

history, and it has flown many types of aircraft. Today, the versatility and economy of the Hawk in our many roles far exceeds expectations, attracting universally favourable comments from our many 'clients'. Admittedly, the modern agile 'customer services' we provide do not, and cannot, have anything like the glamour and danger of active front-line units. Although the crews are inevitably unable to boast the same heroic, and often outrageously perilous exploits as their wartime predecessors, the current tasks are nonetheless essential in delivering the effectiveness of all three Services. Simultaneously, the Squadron's role provides an excellent and evolving medium in which crews gain invaluable experience of front-line style operations across a wide spectrum of challenging tasks, not only here in the UK, but in many other countries within NATO."

"I am as proud as any of the long list of commanding officers to be at the helm of Number 100 Squadron and sincerely hope that many others will be able to follow. Meanwhile, I and all the proud men and women on the Squadron will do our utmost to preserve the true spirit, the tradition and lifeblood of one of the oldest and most distinguished Squadrons in the Royal Air Force. Let us make no mistake, there are challenging and even difficult times ahead, but I am convinced that 'Team One Hundred' can step up to the mark and make a real difference. We commit ourselves to 'Keep it going'."

**Wg Cdr Darren Legg  
OC 100 Sqn 2007**

**Flt Lt Ron Clark DFC (100 Sqn)  
'Phantom' pilot, presents Flt Lt  
Ed Straw BBMF pilot with his  
WWII battledress tunic**

"That said, and reflecting on 90 years of virtually uninterrupted exploits and operations, I find that the professionalism, spirit and pride on 100 Sqn is manifestly unchanged, although the hardware and style of operations on the Squadron have evolved both substantially and dramatically over the years. I can justifiably and most aptly recognise the efforts of everyone on the Squadron by quoting the words of Major C G Burge when, as Squadron Commander, he wrote his conclusion to the *Annals of 100 Squadron*:



**100 Sqn 90th Birthday Hawk**

**Ron Clark at BBMF, April 2007**



"My task as CO was considerably lightened by the energetic and wholehearted support which I, at all times, received from one and all serving under me. Pilots and Observers, always full of determination and keenness, unselfish and cheerful at all times, won for themselves and the Squadron the greatest admiration. Like gentlemen and sportsmen they played the game throughout. No less can be written concerning the Ground Personnel. Their task was no light one and their devotion to duty greatly contributed to the success of the pilots and observers. Although their work was less romantic, their task entailed great hardships and hard work . . . they too 'kept it going'. Lastly I cannot speak too highly of the *esprit de corps* which so strongly existed . . .

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Flt Lt Ian Bradbury. 100 Squadron, Royal Air Force Leeming.

Officers of 100 Squadron, Royal Air Force Leeming.

[www.100squadronassociation.org.uk](http://www.100squadronassociation.org.uk)

[www.bbmf.co.uk](http://www.bbmf.co.uk)

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# Boy and Apprentice Training at Cranwell 1916-1952

By Wg Cdr Andy Tait

The title of this article may have prompted many to think: 'that's not right – boys and apprentices trained at Halton . . . Cranwell is for officers'. Well many in the RAF are familiar with the history of the RAF College at Cranwell, and with the training of cadets and officers there, but how many know about another aspect of training at Cranwell that had begun even before Air Marshal Trenchard selected it as the site for his College? Although that College was to grow on what is now known as West Camp, from 1916 onwards the East Camp became the home of training in technical trades for boys, and later apprentices. This training, and the various schools and colleges in which it took place, shaped the area and buildings still to be seen on the unit, and was a part of life at Cranwell until 1952. Its story involves some names that remain well known today, and features several aspects that will, perhaps, still seem familiar and relevant more than 50 years on.

Wireless School for Boys in the eastern half of the Station. Thus, from its earliest days East Camp (though not yet called that) was given over to ground training units.

A notable figure in the history of the Boys' Training Wing was HRH Prince Albert – later to become HM King George VI. Illness having affected his suitability for service at sea, Prince Albert was appointed to RNAS CTE Cranwell on 1 January 1918, and arrived in February 1918. He served initially as Officer in Charge of Boys, and later as OC 4 Sqn in West Camp. He lived in a small building (now known as York House) near today's York House Officers' Mess, later moving out to a cottage in South Rauceby. His presence led to the first royal visit to what was by then RAF Cranwell by King George V and Queen Mary on 11 April 1918. He left in August 1918 after the appointment of Lt Col A C Barnby RAF as OC Boys Wing, and moved to an RAF Officer Cadet Training Unit at St Leonards-on-Sea. During his time at Cranwell he had his first experience of flying, and later became the first member of the Royal Family to gain his pilot's certificate. He was also the only member of the Royal Family (and future King) to be married in RAF uniform.

At this time there were some 500 RNAS boys in training, with numbers planned to rise to 1,500. Prince Albert has left us this description of the early regime:

"The life here is very different to a ship. Everything I deal with is a long distance from one another. I am looking after the boys, of which there are 500, and this week I have been taking over from Mackay, a flight sub who was in charge of them. I am going to run them as an entirely separate unit to the remainder of the men and I am known as the Officer Commanding Boys. I shall have to punish them myself and grant their requests for leave, etc. The work is entirely



Aircraft Apprentice Square

## Boy training in the RNAS, 1916-1918

The Royal Naval Air Service Central Training Establishment Cranwell, which opened on 1 April 1916 under the command of Commodore Godfrey Paine CB MVO Royal Navy, included a Boys' Training Wing to train young ratings as air mechanics and riggers. There was also a







**WO's Accommodation Block,  
now St Andrew's Church**

new to me and I found it rather difficult to begin with but I shall get used to it. They live in small huts, 20 Boys in each and these give me the most trouble as they won't keep them clean without my constantly telling them off to clean them out of working hours. The petty officers are not altogether very satisfactory. One finds a tremendous difference between them and the proper Naval PO. But with a little persuasion I hope to make them understand what I want."

With the formation of the RAF in April 1918, boys' training was to be concentrated at Cranwell but, as the new brick buildings at East Camp were not yet completed, tents were used for the 300-plus RFC boys who arrived in April – from Halton of all places. In time the boys' numbers were to rise to a total of 2,500, but records of these early days note a good deal of confusion as the staff tried to reconcile differences in drill, uniform, ways of doing things, and even language, between the two parts of the new Service.

**RAF Boy Mechanic and Apprentice Training, 1918-1926**

Although the new Air Ministry intended from the outset to create a permanent home for technical training at Halton Camp on the Rothschild estate in Buckinghamshire, it was decided to use Cranwell for the training of boys for the

RAF until there was enough permanent accommodation at Halton. Plans called for a student population of 2,000, with an instructional staff of 25 officers and 340 airmen. The new barrack blocks and other accommodation, begun by the RNAS, provided the wherewithal to do this, giving the boys (for the first time) hot water, real beds, mattresses and sheets. As Prince Albert noted, terminology was an early problem, although at this stage Naval terms seemed to prevail – mess deck not dining hall, galley not cookhouse. Most felt that referring to a trip into Sleaford on the camp's own steam train as 'going ashore in the liberty boat' was stretching it a bit. The changing terminology extended to the name of the unit. Prince Albert's Boys' Wing became a Boy Mechanics School and then a Boys' Training Wing, before being renamed as No 2 School of Technical Training (Boys) in March 1920. In April 1921 it became the Boys' Wing of the Cadet College Cranwell, which remained its name until October 1925 when it became No 4 (Apprentices) Wing. As the name suggests, by this time the training of boys had become the RAF Apprentice Scheme, so before looking at life in the Boys' Wing, let's look at what that entailed.



**East Camp barrack blocks**

**The RAF Apprentice Scheme**

In planning the future of the new Service, Trenchard recognised that it would be very difficult to compete with civil firms for technical tradesmen. He therefore intended that the RAF should recruit well-educated boys and train them as the nucleus of the RAF – forming 40% of all groundcrew and 60% of the most skilled tradesmen. There would be incentives in the form of early promotion and, for the very best, cadetship places at the RAF Cadet College leading to pilot training and permanent commissions.



**York House**

**Background picture: Tree planted by Lord Trenchard during visit to Cranwell, 28 July 1953**



By good selection and provision of training, the boys would be able to complete their apprenticeships in one of a variety of trades in three years, rather than five as was usual in civil life. The Apprentice Scheme (originally known as the Boy Mechanic Scheme) was promulgated to local education authorities in November 1919, and formally opened on 26 April 1920. Boys were nominated by these authorities, or by certain schools, to undertake an examination set by the Civil Service Commissioners at one of 15 regional sites. It was originally felt that the scheme would be attractive to grammar schools, and to public and other fee-paying or boarding schools. Those successful in the four-part examination (mathematics, experimental science, English, and a general paper) would be medically examined and attested for 10 years' regular service with a further two years in the reserve.

The first entry of 235 boys, selected against 300 vacancies with plans for 1,000 per year, set off for Cranwell on 18 January 1921. Their food, lodging and uniforms were provided free, and they were paid 1/6 per day if under 18, and 3/- per day if over 18. Other rates of pay in 1921 for comparison were:

<b>Aircraftman 2nd Class:</b>	4/-
<b>Corporal:</b>	7/9
<b>Sergeant Major 1st Class:</b>	13/-
<b>Cadet:</b>	5/-
<b>Flying Officer:</b>	£1 3/-
<b>Wing Commander:</b>	£2
<b>Air Chief Marshal:</b>	£7

If desired, boys could buy themselves out of the Service for £20 within the first three months, rising to £100 thereafter.



Sick Quarters, now the Sub-Aqua Club

These first Boy Mechanics (the term Aircraft Apprentice was not adopted until the move to Halton) were taught two groups of school subjects. The first group comprised English, literature and history; and the second group consisted of mathematics, physics and theory of flight. The boys also received practical workshop training in repair and maintenance, initially in the old RNAS workshops in West Camp. Indications are that the latter was broader, though not as thorough, as the training that would be provided at Halton.

#### Life in the Boys' Wing

At this time the lives of the Cadet College in West Camp, and the Boy Mechanics in East Camp, seem to have existed in separate worlds, although there were a small number of links. Both came under the Commandant Cadet College (Air Cdre Charles Longcroft) in his role as AOC of Cranwell Air Station, and he encouraged a unity of approach under a single motto: *Superna Petimus*. There were regular sporting contacts, but virtually no social interaction – in those days officers and airmen seldom met except on duty. In fact, the airmen seemed to be extremely conscious of their status and certain well-defined rights that officers were at pains to respect.

By the time of the first passing out term in December 1922, at which the inspecting officer was the Chief of the Air Staff Air Chief Marshal Sir Hugh Trenchard, there were 1,208 boys in the Boys' Wing, organised in three squadrons – each of about 400 with a proportion from each of the four entries in residence. There were two entries each year, in January and September. The typical working routine consisted of: working in classrooms and workshops Monday to Friday, except for Wednesday afternoon sports; Saturday morning – drill, and inspections of boys and barrack blocks; and Sunday morning – church parade. Boys were allowed out of camp on Wednesday afternoon after sports, and on Saturday and Sunday afternoons. Boys over 18 were allowed to smoke, but only while off camp. Although not recorded, it is likely that a variety of social hierarchies would have grown up amongst squadrons, entries and other groups, governing who ate first, who sat where, and who got the best bunk spaces. Air experience flying for boys was provided

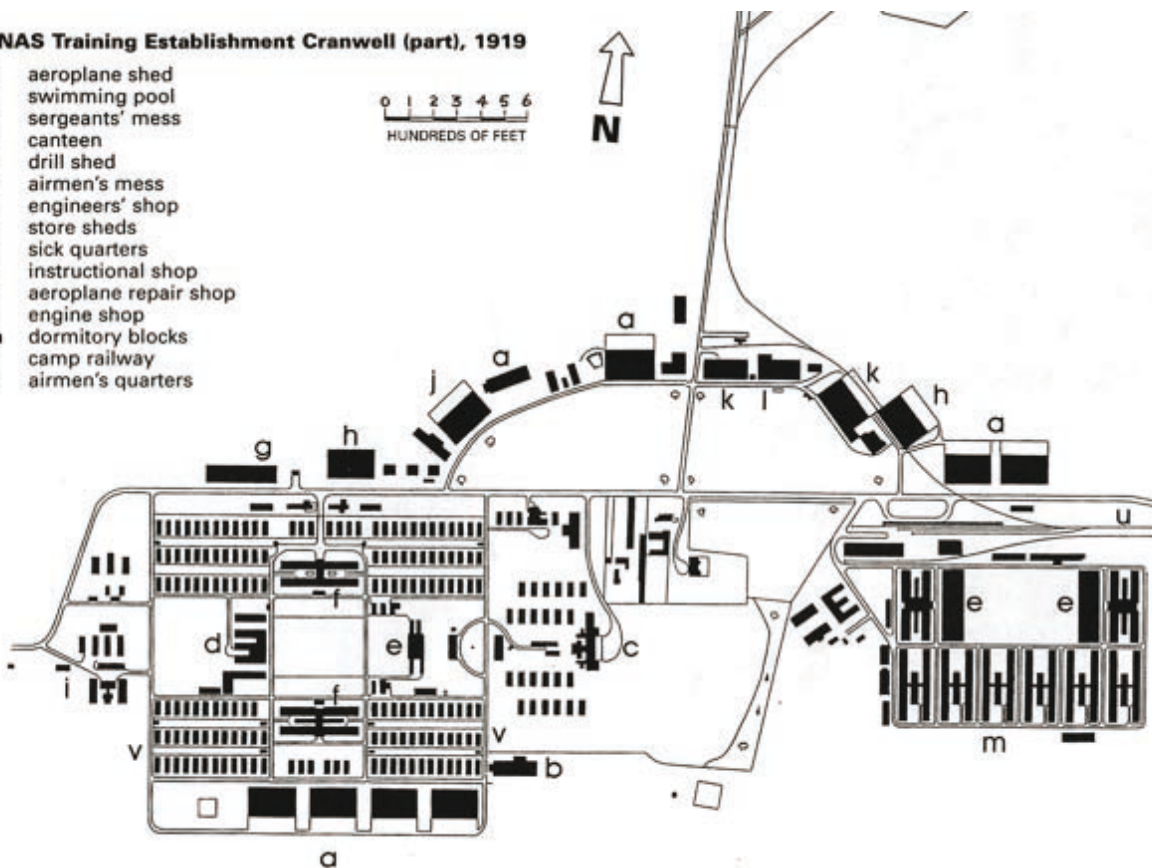


Canteen Block, now the Ultra Bowl



**RNAS Training Establishment Cranwell (part), 1919**

- a aeroplane shed
- b swimming pool
- c sergeants' mess
- d canteen
- e drill shed
- f airmen's mess
- g engineers' shop
- h store sheds
- i sick quarters
- j instructional shop
- k aeroplane repair shop
- l engine shop
- m dormitory blocks
- u camp railway
- v airmen's quarters



Plan of RNAS Training Establishment, Cranwell

on the North Airfield in the Boys' Wing's own aircraft – a Vickers Vimy, a DH9A, 2 Avro 504s, and a Bristol Fighter with a Falcon III engine.

As accommodation became available at Halton, training for specific groups of apprentices began to transfer there, but Cranwell remained 'overspill' for apprentice fitters and riggers until 1926. In 1924 there were still 981 boys in training at Cranwell, as by December of that year there was still only accommodation at Halton for 2,000 apprentices against the eventual need for 4,000. In October 1925, the Boys' Wing became No 4 (Apprentice) Wing and the last remaining Apprentices (Entries 9-14) moved from Cranwell to Halton in August 1926 – taking with them the tradition of the apprentice Pipe Band, which was to become such a feature of Halton. All apprentice training was now concentrated at Halton, with the exception of electrical and wireless training at Flowerdown, near Winchester, and armament and gunnery training at Eastchurch, near Chatham in Kent.

The last entry to complete training at Cranwell was No 8, among whose 600 boys was Frank Whittle, who had joined as an apprentice rigger in September

1923. Whittle was amongst 18 Cranwell boys who were awarded cadetships at the Cadet College; three of these went on to win College Prizes, and one was the first aircraft apprentice to be awarded a Wakefield Scholarship to the College. The Cranwell boys' Wing had also produced over 60 corporals and some 600 Leading Aircraftmen (LACs) between 1920 and 1926. With the departure of No 4 (Apprentice) Wing in 1926 there was no Boy or Apprentice training at Cranwell until the arrival in August 1929 of the Electrical and Wireless School (E&WS) from RAF Flowerdown.

**The Electrical and Wireless School, 1929-1952**

As well as the RNAS Wireless School for Boys set up at Cranwell in the early days, an RFC School for Wireless Operators was formed in 1915 in the Town Hall in South Farnborough. In 1918 with the formation of the RAF these units were combined to become No 1 (T) Wireless School RAF at Flowerdown, renamed as the Electrical and Wireless School in July 1919. From 1922 the Electrical and Wireless School played its part in the RAF Apprentice Scheme, with the top 40 apprentices in each intake being sent to





Flowerdown for training in what were seen as the most technically challenging trades.

As the centralisation of apprentice training at Halton continued, and the last aircraft apprentices left Cranwell in 1926, rumours began to circulate at Flowerdown about a potential move to Cranwell. However, the accommodation available at Flowerdown was very good and it was not until 1929 that the School (at that time coincidentally under the command of Gp Capt A L Godman, who had been the first Assistant Commandant of the RAF Cadet College at Cranwell in 1920-21) moved to East Camp at Cranwell. The Electrical and Wireless School trained officers as well as apprentices, and, from 1934, boy entrants were also introduced after a reorganisation of the electrical and signals trades.

By 1936 the School was divided into two wings: No 1 Wing – training airmen as wireless operators (1,103 men under training); and No 2 Wing – 152 aircraft apprentices training as Instrument Makers; 573 aircraft apprentices training as wireless operator/mechanics; 575 boy entrants training as wireless operators; officers on the 14-month Officers' Long Signals Courses, and a variety of refresher courses. Passing out parades were held for the Electrical and Wireless School apprentices in July and December each year, and it was at one of the last of these before leaving Flowerdown, in July 1928, that 366190 Leading Aircraft Apprentice Shirley TUC passed out with a cadetship to the Cadet College in the General Duties Branch and won the Hyde-Thomson Memorial Prize. The Hyde-Thomson Memorial Prize (established in 1918) is still awarded for the best performance in Engineer Officer Foundation Training (EOFT) each year by an ex-airman from an electronics trade. LAA Shirley went on to become AVM Sir Thomas Shirley KBE CB DL, an engineer specialist, AOC and Commandant of the RAF Technical College 1957-59 and AOCinC Signals Command 1964-66. The Sir Thomas Shirley Memorial Cup is now awarded each year to the Engineer Officer who has the best overall performance in EOFT and Initial Officer Training (IOT).

In 1938, the School became No 1 E&WS when a second school was formed at Yatesbury. The Signals Squadron of

No 1 E&WS had its own aircraft, which flew from the North Airfield at Cranwell. By 1939 these included Westland Wallace and Wapiti, Vickers Valentia, Tiger Moths and Miles Magisters. By the outbreak of war in September 1939 there were 2,500 officers and men under training in East Camp, compared to 150 or so in West Camp. Courses included:

<b>RAFVR Officers Signals</b>	<b>6 months.</b>
<b>Aircraft Apprentice W Op/Mech</b>	<b>2 years.</b>
<b>Boy Entrants W Op</b>	<b>1 year.</b>
<b>Airmen W Op/Mech</b>	<b>32 weeks.</b>
<b>Airmen W Mech</b>	<b>8 weeks.</b>
<b>Air Gunners W Op</b>	<b>12 weeks.</b>
<b>Airmen Teleprinter Op</b>	<b>5 weeks.</b>

### The Second World War

During WWII a great range of flying and ground training activities took place at Cranwell, and many units formed, moved in or moved out – often for very short periods. No 1 E&WS became No 1 Signals School on 1 September 1940, and then No 1 Radio School on 1 January 1943. Despite the pressure of wartime the F540 Operations Record Book (ORB) shows that at this stage No 1 RS boasted three bands: a Voluntary Band of 30 instrumentalists, a WAAF Voluntary Drum and Fife Band, and an Apprentices' Pipe and Drum Band. The ORB also records an example of poor organisation:

“An astonishing arrangement exists in No 2 Wing Institute whereby separate queues are formed for tea and cake. Thus, after waiting 5 minutes in a queue for tea a man has to go to the tail of the next queue for cake. Immediate action has been taken to remedy this hopeless state of affairs.”

Between March 1941 and June 1946 No 1 Radio School was joined at Cranwell by another similar unit, situated to the west of the Cadet College called first No 1 Radio Operators School, later No 1 RDF School and finally, from January 1943, No 8 Radio School. This school specialised in the training of Radio Mechanics and Operators, and Signals (Radio) Officers.

Before leaving the wartime story of the Radio Schools, mention should be made of Cranwell's Nobel Prize winner.

Cpl Godfrey Hounsfield was a Radar Mechanic Instructor at Cranwell where, in his spare time, he sat and passed the



Cranwell 1940s

Background picture:  
Aeroplane Repair Shed,  
now Motor Club

East Camp – Boys' Wing, RAF  
Cadet College Cranwell, 1922







City and Guilds examination in Radio Communications. He also occupied himself in building large-screen oscilloscope and demonstration equipment as aids to instruction, for which he was awarded a Certificate of Merit. His work came to the notice of the AOC 27 Gp, AVM Cassidy, who at that time was responsible for training at Cranwell. He arranged for Cassidy to attend Faraday House Electrical Engineering College in London after leaving the RAF in 1946 to study for a diploma. Cpl Hounsfield joined EMI and in 1979 received the Nobel Prize for Medicine for his work on computer-assisted tomography – what we know today as the CAT body scanner. Sir Godfrey Hounsfield was knighted in 1979 and died in August 2004.

### Post-war – the end of apprentice training at Cranwell

After the war Cranwell began the process of reverting to some sort of normality, with the aim of reopening as the RAF College in 1946. With much focus on building new training patterns for the officers of the future, Cranwell's contribution to ground, and airmen, training began to dwindle. Much of No 1 Radio School moved to a new home at RAF Locking in October 1950, but the apprentice training elements remained, retitled as No 6 Radio School. No 6 Radio School moved to Locking on 1 December 1952, ending over 36 years of Boy and Apprentice training at Cranwell.

### Overview

Although Cranwell is famous for training officers, it has also had a long history of training boys and apprentices from the earliest days. From RNAS Boys' Training Wing, through to the early days of the RAF Apprentice Scheme – which began at Cranwell because there was not enough accommodation at Halton – through the Cadet College Boys' Wing and later the Electrical and Wireless School, and No 1 Radio School, generations of Boy Mechanics and aircraft apprentices began their service careers in the East Camp at Cranwell, around an area now named Apprentices' Parade Square. Names such as Whittle and Shirley as apprentices, and a future King and a future Nobel Prize winner as instructors, are associated with this little-known aspect of Cranwell's past – and the layout and buildings of East Camp

still reflect the schools that they worked in. It is now 55 years since the last apprentices finished their training at Cranwell, but their story, combining thorough training, frequent change of organisation and location, but always high standards and spirits, contains many elements that will be familiar to us in today's world of Tri-Service colleges and Defence Training Rationalisation.

T E Lawrence served at Cranwell as AC2 Shaw 1925-26, and observed: "But there is rising up a second category of airman, the Boy Apprentice . . . Soon the ex-boy will be the majority, and the RAF I knew will be superseded and forgotten . . . The airmen of the future will not be owned, body and soul, by their service. Rather, they will be the service, maintaining it, and their rights in it, as one with the officers . . . The ex-Boys are professionally in the RAF as a privilege, making it their home. Soon, when they have made their style felt, officers will only enter their airmen's rooms accompanied, by invitation, guest-like and bare-headed, like us in an officers' mess . . . The era of a real partnership in our very difficult achievement must come, if progress is to be lasting."

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# Sqn Ldr Ian Blair DFM



# A Boy Entrant Hero

Left: Ian Blair, 1934 Entry  
Armourer Eastchurch

By Tom Brown

In September of 1934, a 16-year-old boy by the name of Ian Blair joined the Royal Air Force as one of the very first batch of Boy Entrants and commenced training as an Armourer at RAF Eastchurch. Six years later, while serving with 113 Sqn in the Middle East, he was to be awarded the Distinguished Flying Medal (DFM) for bringing the Blenheim, in which he was an Observer, in to a perfect landing after his pilot was killed by enemy fire. Two weeks later, Blair was sent for pilot's training to RAF Habbaniya in Iraq and was awarded his wings before proceeding to Southern Rhodesia for further training. It was around this time that he was arrested by the Military Police on suspicion of impersonation. Blair's promotion to sergeant had yet to come through and so, as a corporal, he was wearing both his newly acquired wings and his DFM ribbon. As every Military Policeman knew, there was no such rank as a corporal pilot and therefore he must be an impostor. Fortunately, this misunderstanding was soon cleared up and Blair was released.

In August 1941, the now Sgt Blair was posted back to the UK, where he resumed

his flying duties and was eventually posted to 61 OTU for conversion to Spitfires. At this time he was experienced in multi-engine aircraft and so it was, with a degree of trepidation, that Blair took to the air in a Spitfire for the first time. In February 1944 as a Warrant Officer, Blair was serving with 312 Sqn flying the Mk VII Spitfire when he claimed victory for the highest altitude kill during WWII when he shot down a Bf 109F at 35,000ft over the Orkneys.

In the years following the War and his commissioning, Blair became a Supplies Officer at a variety of RAF stations at home and abroad. It was while serving in Malta in 1970 that his combined love of flying and diving helped in the recovery of Spitfire Mk Vc, BR108 of 603 Sqn from its watery grave in Marsalforn Bay. On 8 July 1942 this aircraft, flown by Flt Lt Lester Sanders DFC, had been in action against a lone Ju 88 when it was struck by fire from the rear gunner and had to break off. Shortly afterwards he was jumped by two Bf 109s and subsequently had to ditch in the sea, though fortunately the pilot survived. As Officer in Charge of the archaeological search, Blair dived on the wreck a number of times

