



A Tribute to
Jack Griffiths DFC*, MA
25 February 1920 - 12 September 1972



***Schoolmaster & Serviceman
Much Missed by All***

Table of Contents

Preface	3
Chapter 1 - Introduction	5
Chapter 2 - Recruitment, Selection & Basic Training	9
Chapter 3 - On The Offensive	12
Chapter 4 - 'Headhunted'	22
Chapter 5 - One Of The PFF Elite	30
Chapter 6 - Denouement	39
Annex A - Movements	46
Annex B - 1000 Bomber Raids	57
Annex C - Certificates & Results	62
Annex D - Missions from Topcliffe	66
Annex E - Missions from Marham	68
Annex F - Missions from Bourn	71
Resplendent	75

Preface

On 12 September 2022, *The Lerpooians*¹ website posted an article written by a member, Jeremy Clitherow, to commemorate the 50th anniversary of the passing of a school legend - Jack Griffiths, DFC*, MA. The succinct and beautifully written article, *War Hero and College Master Remembered*, stimulated much feedback from College alumni who enjoyed the tutelage and friendship of a College treasure - 'Butch' Griffiths.

Amongst the feedback were comments from two such alumni, both retired aerosystems engineers with a passion for aviation history as it happens, who for a variety of reasons had undertaken some research into 'Butch' and in particular his exploits in the RAF during WWII. The document is an attempt to build on those initiatives, the article by Jeremy Clitherow and other reference material, to deliver a tribute to a man who, like many of his generation, gave so much and yet played down their achievements during our country's hour of need. To Liverpool College alumni, he was a favourite schoolmaster, a wizard at Chemistry and Maths, a "rotund" but very able Rugby referee, a born leader on the CCF parade ground, a 'snappy' dresser (not) and a loveable (at a distance) wit. But there was much more to this man as the DFC*² and hitherto untold achievements suggest.

This document takes as its centrepiece the research of Edward (Eddie) G Vickers, (Brook's House), who managed to obtain Jack's Flying Log Books from one of his daughters. An RAF Log Book is to an aviator his life story, to a historian gold dust. It records every posting, every squadron (sqn), every aircraft and, where the Secrets Act allows, every type of mission in an aviator's flying career. Those log books from WWII are much sought after. However, Eddie was able to go one better. Drawing on his experience of researching his family's genealogy, he was able to dig deeper and place the flying exploits of 1203926 AC2 (later 136040 Wg Cdr)³ Jack Griffiths DFC* RAFVR into the post-WWII context of a proud welsh schoolmaster who guided thousands of schoolboys onto successful careers.

Another respondent to Jeremy's article was a retired RAF officer who, if he were to admit it, probably owed his successful career as an engineer in the RAF and Industry to the mentoring from 'Butch' Griffiths. On a number of occasions during retirement, he had attempted unsuccessfully to research his mentor's RAF career, trying to exploit his own RAF experience and his research of the careers of 30,000 alumni of the RAF College, Cranwell. Taking Jeremy's and Eddie's articles, Ian Steward (Butler's House) has attempted to add value by drawing on this experience, to explain the magnitude of Jack Griffiths' war time achievements. So doing, we can trace the origins of the character and talent of the man we call fondly 'Butch'.

We must also acknowledge with thanks the obituary written of Jack Griffiths by his colleague and equally respected schoolmaster, Tom 'TAP' Pickard, and the references to Jack and the exploits of all his war time colleagues in definitive historical accounts, most notably Stuart Scotts' 105 Squadron history *Mosquito Thunder*, David Ransom's Battle Axe - A history of 105 Squadron, Martin Chorlton's *The RAF Pathfinders*, RV Jones' Most Secret War, the IBCC⁴ database and the ubiquitous *Wikipedia*.

¹ The alumni association of Liverpool College.

² The asterisk is common notation that denotes a bar to a medal. DFC* - DFC and Bar.

³ RAF airmen who were later commissioned would receive a new Service Number.

⁴ IBCC - International Bomber Command Centre, Lincoln.

Doubtless if he were alive today, Jack would deny that he played an instrumental part in Bomber Command successes of WWII; as will become evident, he most certainly did.

In fact, we believe that his story as a serviceman ought to be told and placed in the



context of other brave men whom Liverpool College can call their own. It is with immense pride that Liverpool College can claim as a former pupil one of only three servicemen to win the prestigious Victoria Cross **and** Bar, Capt Noel Godfrey Chavasse VC* MC RAMC. “Chavasse died while bringing in wounded men under heavy fire at Wieltje: though severely wounded himself, he went out again and again over a period of two days until (inevitably, it seemed) he was still more grievously wounded, and died two days later in hospital. For this, he was posthumously awarded a bar to his Victoria Cross.”⁵

Another College schoolmaster to be recognised for an outstanding act of bravery was Lt Hugh Willmott ‘Roxy’ Roxborough, Home Guard. “On 6th June 1943, at Hele Bridge Rifle Range, Lieutenant Roxborough made a faulty throw with a hand grenade which fell close to the throwing bay. Thinking that the lives of the others might be endangered, he immediately picked up the grenade, which exploded in his hand, and as a result he lost his right hand and left arm”⁶. For this particular act of bravery, he was awarded the George Medal, and he must surely have been one of few in the Home Guard, if not the only man, to receive this award. So it seems appropriate to pay tribute to ‘Butch’ in this context of brave Lerpoolians and their mentors.

This tribute to Jack Griffiths covers his RAF career, chronologically (by tour of duty), from joining as a 20 year old in 1940 till his last day of service in the RAFVR and transfer to the RAFVR (T)⁷ whilst at Liverpool College. The main chapters are structured thus: an introductory section on the relevant events in Bomber Command within the timeframe of the chapter; Jack’s contribution during this timeframe; a reflective assessment of those contributions which, we shall see, were to be recognised by high authority within the RAF and ultimately to lead to his awards of the DFC and Bar in 1944.

Throughout this document, we use Annexes, hypertext links (see red note below) and footnotes to assist the reader without breaking the flow of the story and to explain terminology or colloquial expressions that may be familiar only to ex-serviceman and military historians and less to others. Principally through Eddie Vickers’ extensive research, the Annexes give detailed accounts of Jack’s exploits and a summary of his movements, promotions and awards.

[In its electronic form, this document contains underlined embedded hypertext links that enable access to supplementary information, including historic videos and recordings that depict the environment in which Jack must have worked. Command+Click (for Apple Users) or Control+Click (Windows Users) will take you to these data sources, opening a new tab on your internet browser, enabling you to return this document under the original browser tab without losing your place.]

⁵ Extract taken from Page 215 of David Wainwright’s Liverpool Gentlemen, a history of Liverpool College, an independent day school, from 1840.

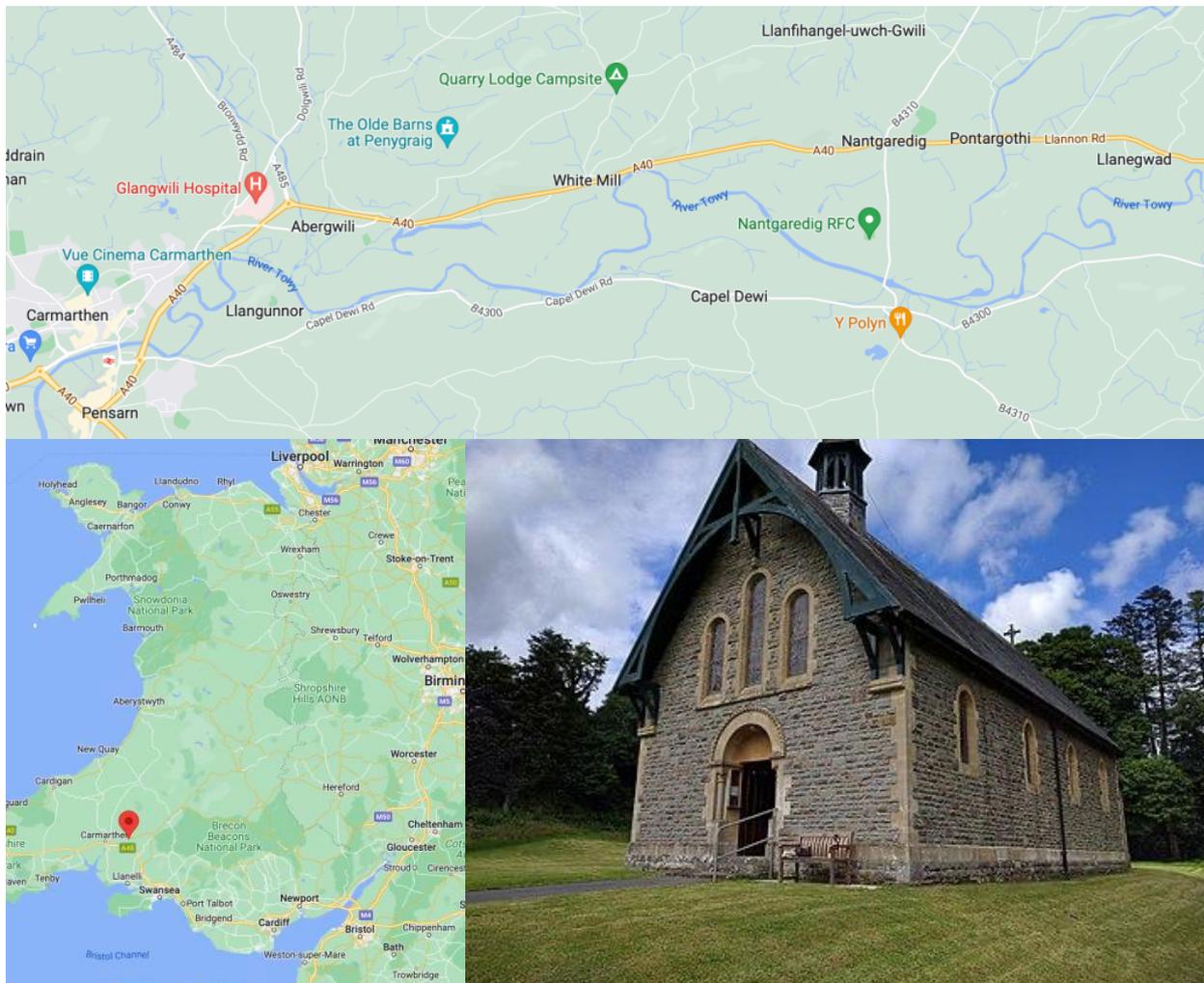
⁶ Citation courtesy of Roger Peach of *The Lerpoolians*.

⁷ RAFVR (T) - RAF Volunteer Reserve (Training) branch.

Chapter 1 - Introduction

[Courtesy of EG Vickers]

Jack Griffiths was born in Llanyblodwel near Oswestry on 25 February 1920. His parents were both school teachers, Thomas Burton Griffiths (1872-1951) originally from Llanegwad Carmarthenshire and Annie Louisa Jones (1884-1963) from Llanyblodwel. The teaching profession went further back in his ancestry through paternal grandparents; Thomas Griffiths, born 1840 in Newcastle Emlyn Carmarthenshire, and Elizabeth Wigley, born 1843 Carmarthen, were also teachers. On his maternal side, before Annie was born, the family were farmers in Llanyblodwel and neighbouring Llansilin in Denbighshire. Jack was educated at Oswestry High School for boys.



The Holy Trinity Church, the main landmark of the Village of Llanegwad, Carmarthenshire

At the age of 20, Jack joined the RAF as an AC2⁸ at Cardington No 2 Recruiting Centre on 30 Sept 1940 with the Service Number 1203926, 12 months after the outbreak of WWII. This would be the beginning of an impressive career in the RAF, one of immense courage, technical ability and professional dedication. Currently, it is unknown to all but a very few.

⁸ AC2 is Aircraftsman Class 2 - the lowest rank at the time of WWII

We shall see that, following basic training and being kitted out in readiness for flying duties as an Observer (renamed Navigator in 1942), Jack spent a frustrating period on ‘holding’ postings that lasted 10 months, while the RAF decided how best to exploit his many talents. We postulate a plausible hypothesis that Jack was caught up in the rethinking and restructuring of Bomber Command precipitated by the Butt Report, which had seriously challenged the performance and effectiveness of the Command on bombing missions during 1940-41. We shall see that, already promoted to LAC⁹ on 15 Feb 1941, Jack eventually started his specialist navigator training in July 1941, being one of the first to undertake the revised and much improved curriculum demanded by Butt, successfully attaining his Observer brevet and, as was the policy at the time, being promoted to the rank of Sergeant on 13 Dec 1941.

British Royal Air Force	German Luftwaffe	Italian Regia Aeronautica	United States Army Air Force
Marshal of the RAF	<i>Generalfeldmarschall</i>	N/A	General of the Army *
Air Chief Marshal	<i>Generaloberst</i>	<i>Generale di armata aerea</i>	General
Air Marshal	<i>General der Flieger General der Flieger General der Fallschirmtruppe General der Luftnachrichtentruppe General der Flakartillerie General der Luftwaffe</i>	<i>Generale di squadra aerea</i>	Lieutenant General
Air Vice-Marshal	<i>Generalleutnant</i>	<i>Generale di divisione aerea</i>	Major General
Air Commodore	<i>Generalmajor</i>	<i>Generale di brigata aerea</i>	Brigadier General
Group Captain	<i>Oberst</i>	<i>Colonnello</i>	Colonel
Wing Commander	<i>Oberstleutnant</i>	<i>Tenente Colonnello</i>	Lieutenant Colonel
Squadron Leader	<i>Major</i>	<i>Maggiore</i>	Major
Flight Lieutenant	<i>Hauptmann</i>	<i>Capitano</i>	Captain
Flying Officer	<i>Oberleutnant</i>	<i>Tenente</i>	First Lieutenant
Pilot Officer	<i>Leutnant</i>	<i>Sottotenente</i>	Second Lieutenant
Warrant Officer	<i>Stabfeldwebel</i>	<i>Maresciallo di prima classe</i>	Master Sergeant
Acting Pilot Officer	<i>Oberfähnrich</i>	<i>Maresciallo di seconda classe</i>	Flight Cadet
Flight Sergeant	<i>Oberfeldwebel</i>	<i>Maresciallo di terza classe</i>	Technical Sergeant
Sergeant	<i>Feldwebel</i>	<i>Sergente maggiore</i>	Staff Sergeant
Officer Cadet	<i>Fähnrich</i>	N/A	Flight Cadet
Corporal	<i>Unterfeldwebel</i>	N/A	Sergeant
Officer Cadet	<i>Fahnenjunker</i>	<i>Sergente</i>	Flight Cadet
Corporal	<i>Unteroffizier</i>	N/A	Corporal
Senior Aircraftman	<i>Hauptgefreiter until 1944 Stabsgefreiter from 1944</i>	<i>Primo Aviere</i>	Private First Class
Leading Aircraftman	<i>Obergefreiter</i>	<i>Aviere Scello</i>	N/A
Aircraftman First Class	<i>Gefreiter</i>	N/A	N/A
Aircraftman Second Class	<i>Flieger</i>	<i>Aviere</i>	Private

Comparison of Ranks in WWII Air Forces

We shall then track Jack’s progress, as Bomber Command introduced at some pace new aircraft, equipment and techniques to transform its effectiveness from the legacy of an outdated, short range, tactical bomber force to the strategic offensive capability commanded by its new, inspirational Air Officer Commanding-in Chief Arthur ‘Bomber’ Harris, all of which were to help to turn the tide of the war. Jack would rise to the challenge and he would quickly establish his credentials and fly with the very best. As we track Jack’s progress, we also highlight the changes in Bomber Command and its evolving operations to which, it is evident, he made a practical contribution.

⁹ LAC Leading Aircraftsman (following AC1 Aircraftsman Class 1). AC2 was a rank taken under initial training.

Following an obligatory spell at an Operational Training Unit (OTU)¹⁰ to acclimatise to the bomber role with specialised aircraft and equipment, we shall see Jack was moved to operational duties with 10 Sqn as a navigator in May 1942 on the Handley Page Halifax, taking part in all three of the famous '1000 Bomber raids' and having to ditch in the North Sea returning from Raid 2 to Essen. We shall see how quickly he progressed, being commissioned as a Pilot Officer on 23 November, Service Number 136040, followed 6 months later by promotion to Flying Officer. Bomber Command's performance was steadily improving, as was Jack's career; we shall see how he was being noticed and, importantly, by whom. There is no doubt that he was headhunted to join the elite Path Finder Force (PFF) and we shall track his progress and that of his PFF Sqn as they dramatically transformed Bomber Command successes, exploiting the agility of its new Mosquito aircraft equipped with the latest, some say the most effective¹¹, Oboe bomb aiming technology and manned by the RAF's best bomber crews. We speculate how Jack earned his DFC and Bar, through sustained, dedicated service.

His last recorded flight with the RAF was 29 July 1945 and he was discharged in September 1945. Job done. No fuss, no fanfare; move on.

Shortly after discharge from the RAF, he went to St Peters Hall Oxford to obtain a Master's degree, itself an achievement about which we no little. He married his wife Mary, who was at Sommerville College, at the end of 1947 and, having graduated, he taught for a short while at Stowe School Buckinghamshire before moving up North to teach at Liverpool College in the very early 1950s.

But he hadn't given up on flying or the RAF. Jack's service involvement continued through the RAFVR (T)¹², being commissioned in the rank of Flying Officer on 24 February 1949¹³. This was extended for 4 years on 25 February 1966 and a further 4 years on 25 February 1970. He achieved the acting rank of Wing Commander as the Commanding Officer of the Liverpool College Combined Cadet Force (i.e. Royal Air Force, Army and Navy sections) - the oldest CCF in existence. He attended a Commanding Officers training course at the RAF College Cranwell, making him a Cranwellian - a member of an elite alumni with the proud distinction of having been trained at the world's oldest (and finest) military air academy.

In truth, Jack Griffiths **was** Liverpool College. He was known for his variety of mild eccentricities - the 'snort'; the quip; the spectacles that would drop on command from his eyebrows to his nose with unerring accuracy and without the need for Oboe; the 'pointing stick juggle', as he approached the blackboard to decipher a seemingly baffling Chemical equation; his rotund presence on the playing fields; his questionable attire. Jack was not just a schoolmaster; he was a character, an entertainer who captivated his schoolboy audience and who befriended and inspired all in the Common Room. On the sports field, his brain could out-sprint and out-manoeuve the swiftest rugby player; when behind the stumps, there was no need for DRS; on the athletics track, the stop-watch was *his*.

¹⁰ OTU/OCUs were Operational Training/Conversion Units that took airmen from basic training to advanced training on a specific aircraft type. For Navigators, this involved training on different navigation aids specific to the aircraft type.

¹¹ RV Jones in his authoritative book *Most Secret War*, places Oboe ahead of GEE and H2S as the most effective of the three navigation and bomb aiming systems to transform Bomber Command's performance in WWII.

¹² RAFVR(T) - Royal Air Force Volunteer Reserve Training Branch.

¹³ It was not unusual for WWII servicemen to be demobbed at the end of the war and to be recommissioned in a lower rank of the RAFVR (T), when re-enlisting.

Maybe not the smartest officer on parade - that accolade surely must go to the immaculate Major 'Wally' Clark whom sadly we lost in 2022 - but it was clearly he who was in command. Amongst his peers, he was the undisputed leader.

Jack died on 12 September 1972, leaving a widow, 3 daughters, a son and adoring staff members and school alumni. His obituary by fellow schoolmaster, TA Pickard, in Chapter 6 says it all.

The definition of a hero in most dictionaries is along the lines of: '*Someone who has done something brave, new or good, and who is greatly admired by a lot of people*'. Jack met **all** these criteria. This content of this tribute to him may not be well known, but will not surprise those who worked with him or who were tutored by him. The account of his exploits with the RAF in his formative years might help to explain the man, his talents, his energy and his courage. This is our belated tribute to him for answering the call in our Nation's hour of need; lest we forget.

Chapter 2 - Recruitment, Selection & Basic Training

[Research courtesy of EG Vickers; RAF insight, IBM Steward.]

RAF Setting

Jack Griffiths joined the RAF at No 2 Recruits Centre in Cardington on 30 Sept 1940 as an AC2¹⁴, just after the Battle of Britain seemingly had peaked and a month before Hitler abandoned his initial attempts to invade the UK. Perilous times of much uncertainty.

Since the retreat from Dunkirk in June that year, the nation had been braced for invasion, with Fighter Command operations stealing the limelight over and above ongoing operations of Bomber and Coastal Commands. Bomber Command, for which Jack was destined, was struggling to make an effective contribution as it had started the war as a comparatively small tactical force, lacking the requisite technology and operating under-powered and short range bombers (e.g. Halifaxes, Hampdens, Whitleys and Wellingtons). Despite a doctrine adopted since the formation of the RAF of being able to win any future war through air power alone - indeed it formed part of the business case put to Parliament for a separate air force independent from the RN and Army - Bomber Command had suffered two decades of austerity, there being little appetite to retain a large defence capability with public opinion hoping and believing that the Great War had been the “war to end all wars”. Fortunately, Fighter Command, under the leadership of Lord Dowding, had fared better with an Integrated Air Defence that would ensure victory during the Battle of Britain and, coincidentally, buy time for Bomber Command to remobilise and regenerate.

So, as Jack started his training uncertain of his destiny, Bomber Command was embarking on its own transformation programme that would eventually establish its reputation as a highly effective strategic offensive bombing force. Although he may not have known it, Jack was to be a fundamental and much valued part of that transformation. But first, the recruitment, selection and training.

RAF Recruitment

Judging by the series of holding postings that Jack was to endure, the RAF were not quite ready for him, or in truth very many others. Despite the common perception that “war was brewing”, mobilisation took time and led to an eight month period referred to as ‘The Phoney War’.



Jack spent 10 days at Cardington before moving to 7 Recruits Centre - later renamed more appropriately No 7 School of Recruit Training - in Morecambe between 11 October and 9 November 1941. He then spent a month at RAF Calshot, a former seaplane base on the Southampton coast, where judging by a ‘K’ annotation on his records, he was probably kitted out in readiness for aircrew training. This was followed on 3 December by a posting to 1 Receiving Wing (1 RW)¹⁵ at Babbacombe in Torquay, which was to be his home for the next 7½ months.

¹⁴ AC2 is Aircraftsman Class 2 - the lowest rank at the time of WWII.

¹⁵ 1 RW was a holding unit, pending the start of training on 5 ITW, both at Babbacombe.

Whilst at Babbacombe, Jack spent four months with 5 Initial Training Wing before being placed for a further month in the 50 Group {resource} Pool, a further month on the strength of 1 RW again and 1 ITW for yet another month - all in Torquay. It is difficult to derive the full rationale behind these postings, but it is quite likely that Jack had already been earmarked for aircrew training and was awaiting a place on the requisite Observer's course. By the end of the war, many of these 'holding' units would have been amalgamated, and tracking the experiences of a recruit a lot easier.

One can only imagine the frustration that Jack and his cohort must have experienced during this 10 month period of basic training (e.g. 'square bashing', saluting, keeping out of mischief) and holding posts while the war progressed, before eventually moving to 5 Air Observer School (5 AOS) RAF Jurby, Isle of Man, on 19 July 1941. At that time, RAF bombing was being heavily criticised in the landmark Butt and Cherwell Reports; at least, Jack had reached the exultant rank of LAC whilst at 5 ITW (15 Mar 41); with Jack's arrival, the Lords Butt and Cherwell may well have begun to feel a little more optimistic.

5 Air Observer School (5 AOS), RAF Jurby, Isle of Man¹⁶

The most likely reason for the delayed start to Jack's Navigator training was a direct consequence of the Butt report, for as a consequence 5 AOS was to embark on its new training remit, instigating a revised curriculum of improved standards for navigation - the very month Jack and his cohort arrived. Between 20 July and 13 December, Jack would be on the first course to undertake the three new components of navigation, bomb aiming and gunnery instigated by the Butt Report, which would in time transform Bomber Command effectiveness under its new Air Officer Commanding-in-Chief, 'Bomber' Harris.

It is no exaggeration to suggest that this period was pivotal to both the RAF and to Jack's flying career, and, judging by his successes yet to come, he was as much a pioneer of RAF navigation as those who were to shape Bomber Command and its elite Path Finder Force (PFF) whom he would join. From a slow start not of his making, Jack was to adapt quickly to the demands of air navigation - under training, on exercise and on operational missions - and, as we shall see, would be noticed by those influential founders of the PFF.

Over the 5 month course Jack was flown by 30 pilots¹⁷ : Plt Off Astbury; Plt Off Crawford; Sgt Danby; Sgt Doig; Flt Lt Edwards; Wg Cdr Edwards; Plt Off Gunton; Sgt Hagues; Sgt Harrington; Sgt Hodgkinson; Sgt Idel; Sgt Ivey; Flt Sgt Jobling; Sgt. Killian; Sgt Lancaster, Flt Lt Lane; Sgt Lee; Sgt. Morrison; Sgt Newton; Sgt. Orton; Fg Off Osterzewski; Sgt Pacholyczyk; Sgt Palowski; Plt Off Power; Sgt Robinson; Sgt Smart; Fg Off Tavenor; Sgt Walters; Sgt Warn and Sgt Wooley.

Qualifying as an Observer with the rank of Sergeant, Jack achieved marks of 84%, 82% and 79% in the Navigation, Bomb Aiming and Gunnery (air to air and air to ground) sections respectively; "average" apparently. He had acquired a total flying time of 76 hours including 13 hours on Avro Anson, 6 hours on the short nose Bristol Blenheim I, 44 hours on Bristol Blenheim IV and 13 hours on Handley Page Hampden.



Avro Anson



Bristol Blenheim I



Bristol Blenheim IV



Handley Page Hampden

¹⁶ Annex A gives more details on each of the establishments where Jack trained or served.

¹⁷ Wg Cdr - Wing Commander; Flt Lt - Flight Lieutenant; Fg Off - Flying Officer; Plt Off - Pilot Officer; Sgt - Sergeant.

On successful completion of this course, Jack received his coveted Observer's Wing¹⁸ flying badge and, qualifying as NCO aircrew, promoted to Sgt. He went on 10 days leave.

Doubtless buoyed up by that spot of leave, confirmation of his promotion to Sgt and receiving his Observer's brevet, Jack was posted to 19 Operational Training Unit (19 OTU), RAF Kinloss, on 23 December 1941. The training he had received at 5 AOS was what is termed in the RAF now as *Phase 2 Specialist* training, learning the fundamentals of navigation, bomb aiming and gunnery; an OTU takes these basic skills and adapt them to operational scenarios usually aligned to a type of aircraft and its specific technology.



19 Operational Training Unit, RAF Kinloss¹⁹

The first part of the OTU course involved navigational exercises, which were undertaken in Avro Ansons of E Flight, both in the 1st and 2nd Navigator roles. Jack successfully completed 25 hours of day time flying and 22 hours at night, flying with six pilots: Plt Off Dunlop; Plt Off Griffiths; Flt Lt Gunn; Fg Off Lowry; Flt Lt J C McWatters and Flt Lt Porter.

The second part, using Armstrong Whitworth Whitley IV & V's of C Flight, practised cross country flying, bombing and air photography. Jack flew 87 hours on the Whitley, 38 hours by day and 49 hours by night, with 4 pilots: Sgt Lane; Sgt Lea; Plt Off Mandeno and Plt Off Menzies. At the end of the course on 20 April 1942, the Chief Instructor, Wg Cdr B V Robinson, signed Jack off as having successfully completed the OTU course and Jack went on another 10 days leave.

Jack would not be declared operational until he was assigned and cleared to use the aircraft and equipment of his new unit - 10 Sqn.

¹⁸ To this day, receiving one's 'wings' marks a milestone in an aviator's flying career, whether pilot, navigator, air gunner, etc. In 1942, the Observer's brevet - a legacy from the RFC and WWI - was replaced by the Navigator's brevet, the 'O' being replaced by the 'N'. Like many, Jack opted to retain their Observer's brevet, affectionately referred to as the 'Flying A***hole'.

¹⁹ Appendix 1 gives more details on each of the establishments where Jack trained or served.

Chapter 3 - On The Offensive

[Research courtesy of EG Vickers; RAF insight, IBM Steward.]

Progress in Bomber Command

The timing of Jack's posting to his first operational sqn had an additional significance too.



Interview of 'Bomber' Harris by
Gp Capt (later AVM Professor) Tony
Mason

In February 1942, whilst Jack was at 19 OTU, 'Bomber' Harris had taken command of Bomber Command, heralding a transformation in fortunes for the RAF particularly with regard to the aerial bombing campaign over Europe. 'Bomber' Harris was a much loved AOC-in-C by his bomber crews, despite losing half of them during WWII. Despite the criticism of the Butt Report, he had been given the loosest of briefs²⁰ to destroy Nazi Germany with strategic air power and, with the support of the USAF, he remained wedded to the belief that Germany could be destroyed from the air.

One of his first actions to raise the morale of his Command and to remind the enemy of the challenge they were about to face was to summons as many of his resources he could

and launch the '1000 Bomber Raids'. There were three raids between late May and mid-June 1942 (Köln, Essen and Bremen) and Jack would take part in all three.

However, Harris' philosophy of 'area bombing' did not meet with universal approval and, despite attritional successes throughout WWII, he later lost the full support of Churchill who saw the war being won on two land fronts - the Western Front launched on 'D-day' and the Eastern Front being waged by Stalin's Soviet forces. Historian Max Hastings gives an excellent account of the tensions within the RAF and between British and American forces as the strategic air power gave way to tactical air power in support of an integrated campaign on the Western Front, led by Dwight D Eisenhower.

How would Jack adapt to the 'new' Bomber Command? He was about to participate in three dramatic years of RAF History.

10 Squadron (10 Sqn) - 'The Shiny Ten'²¹

At the beginning of May 1942, Jack arrived at RAF Marston Moor having been posted to 10 Squadron, 'Shiny Ten', which flew the Handley Page Halifax I & II. He was only there a couple of days before moving to their main base at RAF Leeming, where he was to spend most of his tour of duty with 10 Sqn, until he was posted from the sqn on 5 February 1943 whilst at RAF Melbourne. The sqn was detached a number of times during Jack's tour of duty: Aqir, Gibraltar 6-12 July 1942; Middleton St George 15-18 July 1942; Topcliffe 19 - 31 July 1942; Melbourne, E Yorkshire 26 August 1942 to 5 February 1943.

²⁰ See video interview at <https://www.youtube.com/watch?v=1LLBJYLOfnA>, or if reading this document electronically, click on this underlined text beneath the graphic of Harris above.

²¹ Appendix 1 gives more details on each of the establishments where Jack trained or served.

The appointed OC 10 Sqn at the time Jack joined the sqn was no less than Wg Cdr Donald Clifford Tyndall "Don" Bennett, later to become Air Vice-Marshal (AVM) Don Bennett, Commander-in-Chief (C-in-C) of the PFF. We shall see later how serving under Bennett's command at 10 Sqn would have a significant impact on Jack's career path as his war time service in the RAF developed.

However, on the night of 27/28 April 1942, Bennett was shot down over Norway whilst attacking the German battleship Tirpitz - dubbed *The Beast* by Churchill - during one of several attempts to sink the Tirpitz that didn't succeed until Lancasters of 9 and 617 Sqns, armed with Tallboy earthquake bombs designed by Barnes Wallis, sunk her in Tromso Fjord on the night of 12/13 November 1944. Bennett's incident was typical of what Jack could expect on bombing missions and is worth recounting.

Bennett had taken off from RAF Lossiemouth in Scotland, but was hit by flak on the way to the target. Pressing on, he made two passes over the *Tirpitz*, which was hidden under a smoke screen. The starboard wing of his Halifax was now in flames with the starboard undercarriage down and flap trailing. The order to abandon the aircraft was given and thankfully, before he went, the Flight Engineer clipped Bennett's parachute on for him (it was the chest type). Bennett left the aircraft just as the wing folded and he, with three of the crew, escaped to neutral Sweden whilst the other three crew were captured and became POWs. In Sweden, they were interned and so Bennett was not in England when Jack joined the sqn. Jack was soon to abandon *his* aircraft, ditching in the North Sea whilst returning from the second of the '1000 Bomber' raids in June that year.

In the absence of its appointed OC, therefore, the sqn was led by Sqn Ldr J B "Willie" Tait who in November 1944 led 617 "Dambusters" Sqn, when they finally sank the Tirpitz. Tait was to finish the war with four DSOs²² to his name. Jack had fallen into some very good company; commanding officers and renown aircrew like Bennett and Tait were always on the look out for, quick to spot, and to share their assessments of talented fellow aircrew when considering candidates for 'Special Duties'²³, in particular those who displayed ability and courage under pressure that instilled trust in fellow crew.

'Working Up' to become 'Operational'

Jack's first flight from RAF Leeming on 13 May 1942 was in Halifax W1055 (later lost) navigating to become familiar with the local area with his pilot, Plt Off James C Murray RNZAF. The same day, Jack took off with another pilot, Sgt Wyatt, for further crew trials in Halifax W1098, which (like W1055) was later to crash at Oeding a couple of weeks later on the second of the "1000 Bomber" Raids to Essen - another milestone in Bomber Command history when Jack was serving with them.

Meanwhile, Jack was continuing to acclimatise to sqn life and to familiarise himself with new navigation and weapons aiming equipment and techniques. Six days after his inaugural flights with 10 Sqn, he crewed with Plt Off John Raymond Goldston (subsequently killed 11 November 1942) for an air test on Halifax W1056 (lost on 3 July 1942). A week later on 26 May, Jack crewed with Sqn Ldr Anthony Stewart Reginald Ennis for an air test on Halifax DG222. [The fourth of "Jack's" aircraft lost in 1942.]

²² DSO - Distinguished Service Order, a medal for bravery in the RAF second only to the Victoria Cross. The citation to Tait's third bar (i.e. fourth DSO) read verbatim the same of some VC recipients.

²³ The term Special Duties will become more significant as we explore Jack's later tour of duty with 105 Sqn.

First Operational Mission

The air test was the prelude to Jack's first operational trip 3 days later, on 29 May 1942, in DG222 with Ennis²⁴ as pilot, to drop 2x4000 lbs "Cookie" bombs on the Gnome & Rhone Works, Paris, which the Germans were using to produce the BMW 801 aero engine.

77 aircraft were on the raid, comprising 31 Wellingtons, 20 Halifaxes, 14 Lancasters, 9 Stirlings and 3 Hampdens of which 4 Wellingtons and 1 Halifax were lost. Later photographic cover showed little or no damage to the factory. A typical, dangerous but fruitless mission.

A local report says that 38 houses were destroyed and 49 damaged, with 34 French people being killed and 167 injured.



Anthony Stewart Reginald ENNIS

1000 Bomber Raids - "In at the deep end", literally²⁵

The '1000 Bomber Raids' represented the first attempt by 'Bomber' Harris' to establish his Command as a credible and effective fighting force and to dispel the bad press from the Butt Report. Disquiet in political circles was still evident and Chief of the Air Staff, ACM Portal brought in a forthright, resolute champion of 'area bombing' aimed at undermining the ability of the enemy to continue fighting. That champion was of course 'Bomber' Harris who lost no time to assert his authority and the Command's power on the strategic bomber offensive. However, with only 466 medium and heavier bombers at his disposal, the enforced transfers of aircraft and men to Coastal and Middle East Commands, and the ongoing support to Coastal Command mine laying ops and ASW in the Bay of Biscay, Harris was limited to launching 200+, low altitude, bomber raids on specific targets with some success, initially against Billancourt, Essen and Lubeck.

With improved lower level bombing enhanced by the new GEE navigation equipment,

flare target marking and incendiaries, Harris was determined to employ similar tactics on the Ruhr despite the threat of heavy flak and the glare of searchlights. He launched with mixed success his famed 1,000 bomber raids on Koln, Essen

30–31 May 1942
1,047 aircraft dispatched in "Operation Millennium" against **Koln**. This first use of the "bomber stream" to overwhelm enemy radar and defences by flying in a narrow dense formation. Bomber Command recorded 868 bombers attacking the target with 1,455 tons of bombs. Over three thousand buildings were destroyed and another nine thousand damaged.

1–2 June 1942
Second 1000-bomber raid on **Essen**, 956 aircraft were dispatched, but the target was obscured and bombing was not effective.

25–26 June 1942
Bomber Command assembled 960 aircraft including aircraft from 2 Gp's day bombing force, to which RAF Coastal Command added 102 aircraft. The attack was spread across the Focke-Wulf factory, the A.G. Weser shipyard, the Deschimag shipyard, and an area attack on the town and docks. Just under 700 aircraft bombed **Bremen**.

The Three '1000 Bomber' Raids

and Bremen, employing every available bomber from the OTUs and HCUs as well as operational sqns of Coastal and Bomber commands. Harris had quickly made his point; regardless of casualties, a large concentrated bomber force with the right tactics had the desired impact, addressing the criticism of the Butt Report.

²⁴ The future was not good for either Ennis or DG222. He and this aircraft were lost when it failed to return from Turin on 11 December 1942 and crashed at Villiers-le Duc with no survivors.

²⁵ A detailed account of each 1000 Bomber raid and Jack's contribution to them is given in Annex B, including Jack's mishap on Raid 2.

Raid 1 - Koln

Piloted by Argentinian born Fg Off David Dudley Plaister Joyce RCAF, Jack was the navigator on Halifax W1040 (lost subsequently on 22 July 1942 at Zijderweld). He was on one of 1,047 aircraft - 602 Wellingtons, 131 Halifaxes, 88 Stirlings, 79 Hampdens, 73 Lancasters, 46 Manchesters, 28 Whitleys - drawn from resources throughout the RAF as follows:

- 1 Group - 156 Wellingtons
- 3 Group - 134 Wellingtons, 88 Stirlings = 222 aircraft
- 4 Group - 131 Halifaxes, 9 Wellingtons, 7 Whitleys = 147 aircraft
- 5 Group - 73 Lancasters, 46 Manchesters, 34 Hampdens = 153 aircraft
- 91 (OTU) Group - 236 Wellingtons, 21 Whitleys = 257 aircraft
- 92 (OTU) Group - 63 Wellingtons, 45 Hampdens = 108 aircraft
- Flying Training Command - 4 Wellingtons.

The exact number of aircraft claiming to have bombed Koln is in doubt; the Official History records 898 aircraft bombing Koln, but Bomber Command's Night Bombing Sheets indicate that 868 aircraft bombed the main target with 15 aircraft bombing other targets.

10 Sqn lost one Halifax on the raid, piloted by Sgt A R Moore; it was shot down by a night fighter near Eindhoven, four crew escaped, but Moore and two gunners were killed. Jack returned safely. He recorded succinctly in his logbook that the bombs, 3x1000 lbs bombs + 12 cans of incendiaries, "fell off 20 miles from the target". Annex B provides more detail.

Raid 2 - Essen

Two nights later, 1/2 June 1942, 956 aircraft were dispatched: 545 Wellingtons, 127 Halifaxes, 77 Stirlings, 74 Lancasters, 71 Hampdens, 33 Manchesters and 29 Whitleys. The plan was similar to the recent raid on Koln except that many more flares were dropped by the raid leaders, Wellingtons of 3 Group.

Crews experienced great difficulty in finding the target; the ground was covered either by haze or a layer of low cloud. Bombing was very scattered.

31 bombers were lost: 15 Wellingtons, eight Halifaxes, four Lancasters, one Hampden, one Manchester, one Stirling and one Whitley. This was 3.2 per cent of the force dispatched. Jack's aircraft was to run into trouble.

A detailed account of Jack's horrific trip is given in Annex B, but in essence the crew found it difficult to find the target due to a layer of cloud below them and hence they bombed blind. On the return journey, they flew at 12,000ft and as they crossed the Dutch coast they were attacked by a Me110 night fighter. Cannon shells pierced the skin of the right wing causing the fuel to ignite.

They had to abandon the aircraft and, with some difficulty, managed to get into a dinghy, having secured splints, obtained from drift wood, to the injuries that two of them, including Jack, had sustained and making them both comfortable in the dinghy. Being the Navigator, Jack had estimated that they were about 10 miles off the enemy coast although it had been impossible to monitor the flight path during the ailing aircraft's horrific dive; they were probably nearer 20 miles off the coast.

It took five attempts by RAF Coastal Command resources, hindered by persistent enemy attacks from the air and from E boats, for the stricken crew to be located and rescued. After three days in the North Sea, they were picked up by a Coastal Command launch directed to them by Hudson aircraft. The rescue was not completed without the launch running the gauntlet of three Me109s and as many as three heavy armed E boats.

To sum up the rescue, there is a statement given by Mid-Upper Gunner Plt Off John Coller:

"I cannot hope to do justice to the brave men who risked their lives to save us, and to the remarkable tenacity and courage the senior officers showed in never abandoning us despite the enormous costs and the risks involved in this amazing rescue against all odds."

Of the crew of Halifax L9623, Plt Off Edward Senior was back flying within a couple of weeks and, on 21 June 1942, his Halifax BB201 was lost without trace on an operation to Emden, Senior and all the crew were killed. Sgt Leslie Hampton was subsequently commissioned, qualified as a pilot and survived the war retiring from the RAF in 1966 as a Flt Lt. Sgt Arthur Hessel was subsequently commissioned and survived the war. Plt Off John Coller was later shot down and became a POW. Sgt A B Hedger was more seriously injured with both legs broken and possibly did not fly again. Jack's leg injury mended quickly as 2 weeks later he was flying, as a passenger in a Hudson from RAF Bircham Newton to RAF Leeming.

Raid 3 - Bremen

Jack returned to operations on 25 June 1942. After an air test of Halifax W1052 at 3:00 pm, it took off at 11:35 pm for Bremen (piloted by Plt Off Lawrence David Hillier RCAF with Jack as navigator) on the last of the "1000 Bomber" raids with the same bomb load as previously.



Type VIIC U-boats under construction at Deschimag. According to the Naval History site, only two U-boats were constructed at Deschimag (U-25 & 26) as mainly ships were built... about 40 destroyers, 2 cruisers and 1 minelayer. One of these



was the German cruiser Seydlitz (noted by the arrow) pictured with two or three destroyers also being fitted out. This photo was taken a month before the third 1000 bomber raid.

The 'Thousand Force' was reassembled for this raid, although only 960 aircraft became available for Bomber Command use. Every type of aircraft in Bomber command was included, even the Bostons and Mosquitos of 2 Group which, so far, had only been used for day operations.

The force comprised: 472 Wellingtons, 124 Halifaxes, 96 Lancasters, 69 Stirlings, 51 Blenheims, 50 Hampdens, 50 Whitleys, 24 Bostons, 20 Manchesters and four Mosquitos. A further 102 Hudsons and Wellingtons of Coastal Command were sent to Bremen. Five further aircraft provided by Army Co-Operation Command were also added to the force. The final numbers dispatched, 1,067 aircraft. Further details are in Annex B.

Jack was to fly with Plt Off 'David' Hillier on eight more missions, during July, as it was detached to other bases and to resume attacks on the German Ruhr.

10 Sqn Detachments

July 1942 was marked by a series of detachments for 10 Sqn, all of which, it seems, involved Jack:

Gibraltar - 6 to 12 July 1942.

Middleton St George - 15 to 18 July 1942.

Topcliffe - 19 to 31 July 1942.

Gibraltar

At the beginning of July 1942, 10 Sqn was ordered to send a detachment to the Middle East, to assist in the bombing of the Italian Fleet. OC 10 Sqn, Don Bennett now back in charge, had no respect for the Italian Navy, having seen it operate during his pre-war Imperial Airways days; he resented his sqn being used on the "Puny Italian Navy" when they could be doing real damage to Germany. Describing the memorial to the Italian Navy erected on the shores of Brindisi Harbour, Bennett states:

"It was a vast massive stone structure meant to resemble the rudder of a ship - the only part of the Italian Fleet ever seen by an enemy."

Nevertheless, the detachment moved down to Hurn, led by Bennett, to refuel but, before departing, the signal arrived that Bennett was to hand over command to Seymour Price, one of his flight commanders, and to report to HQ Bomber Command where he was ordered to create the PFF.²⁶

Hillier, with Jack as Navigator and Acting Flt Lt Alan Egbert Hacking as 2nd Pilot, left for Aqir, Palestine, in Halifax W1178 on 6 July 1942. For some reason, they were forced to turn back and, after a 10 hour trip, landed at Gibraltar. The aircraft bounced and the undercarriage collapsed. A week later Jack, and presumably the rest of the crew, returned to Whitchurch (Bristol) in a BOAC Whitley V G-AGDZ flown by Captain Andrews, a 11¾ hour trip. Halifax W1178 joined 103 Sqn and was shot down on 23 October by a night-fighter, crashing between Nant-le-Grand and Ligny-en-Barrois (Meuse) when returning to Elsham Wolds from a mission over France.

Middleton St George

Back at 10 Sqn, Hillier's crew were assigned another aircraft Halifax W7767 (lost with all seven crew in September), which appears to have been for their sole use over the next two weeks. The first week was spent flying (and diversions) between bases:

RAF Leeming to RAF Middleton St George to (BFX²⁷) Skipton-on-Swale (a sub-station of Leeming) on 15 July;
BFX Skipton-on-Ouse to RAF Middleton St George on 16 July;
RAF Middleton St George to BFX Skipton-on-Swale on 18 July;
BFX Skipton-on-Swale to RAF Topcliffe 19 July.

Topcliffe was to be their base until the end of July.

Topcliffe

A detailed account, from Eddie Vickers' extensive research, covering Jack's missions flown from Topcliffe, is given in Annex C. Operations from Topcliffe resumed on 19 July 1942, Jack taking off at 11:45 pm for the target Vegesack with a 7x1000 lbs bomb load. Vegesack is NW of Bremen and contained the Vulkan U-Boat and shipbuilding yards. The force had orders to bomb the Vulkan U-boat yard visually or, if that was not possible, to bomb the town using GEE, which because of heavy cloud cover they did.

Two days later on 21 July 1942, Jack took off at 11:45 pm for Duisburg with a 2x4000 lbs bomb load in a force comprising 291 aircraft. The results were poor owing to poor target marking by the lead aircraft using GEE.

²⁶ This is a key event, not merely for Bennett and the RAF, but for Jack Griffiths as he had clearly made his mark with Bennett which would smooth the way for Jack to join this elite force and ultimately 105 Sqn where Jack would earn the DFC* on PFF operations.

²⁷ BFX means 'you are diverted to'.

On 24 July 1942, Jack returned to Duisburg with a 2x4000 lbs bomb load, taking off at 0:35 am in a force of 215 aircraft. Much cloud was present over the target and the flares dropped by the leading aircraft were scattered. A partial success.

On 26 July 1942, Jack returned to Duisburg yet again at one minute past midnight with the same bomb load, as part of an attacking force of 313 aircraft. Thick cloud covered the target area. Duisburg again reported property damaged, though not as heavily as on the last two raids. Six people were killed.

That same night, at 11:05 pm, Jack took to the air again, this time to Hamburg in a force of 403 aircraft. 29 aircraft - 15 Wellingtons, 8 Halifaxes, two Hampdens, two Lancasters and two Stirlings - were lost, 7.2 per cent of the force. Crews encountered a mixture of cloud and icing at some places on the route, but clear weather at the target. Good bombing results were claimed.

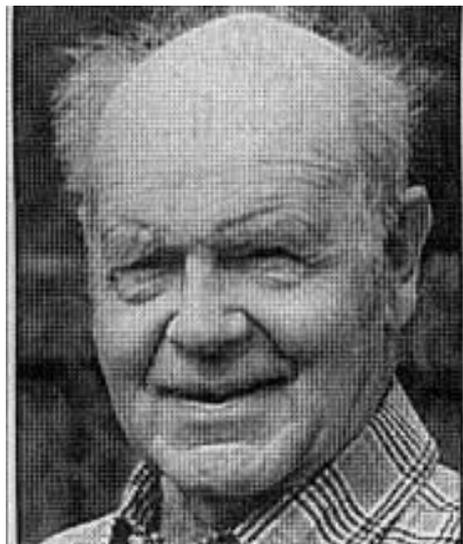
The last trip of the month was to Saarbrucken on the 29 July 1942, Jack taking off at 11:10 pm in a force of 291 aircraft. The defences at the target were not expected to be strong and crews were urged to bomb at lower than normal altitudes. 248 aircraft reported accurate bombing, three quarters of them doing so from below 10,000 ft.

The afternoon of 30 July was the last time that Jack flew with David Hillier. They flew from RAF Topcliffe back to the main base at RAF Leeming. Hillier was promoted and posted to 405 Sqn at RAF Topcliffe, where he was the B Flight commander and on 3 September 1942, flying Halifax DT487 on operations to Karlsruhe, Oblt. Martinek of 1/NJG4 night fighter unit shot them down; all the crew were killed.

All the missions launched from Topcliffe were part of 'Bomber' Harris' mounting offensive against the Ruhr, which was to last until December 1942. There were mixed results and casualties were heavy²⁸, but Jack had survived the ordeal.

Back to Leeming - 31 July to 26 August 1942

Jack had a couple of weeks leave and on his return was attached to 10 Sqn's Conversion Flight, where he was teamed up with a new pilot.



'Pod' James Harrison
In later years

Plt Off James Arnold "Pod" Harrison was a New Zealander, who had recently returned to flying after a bad crash. On the night of 27/28 March 1942, when returning in bad weather from a raid on St Nazaire in Whitley Z9221 of 77 Sqn, they got lost due to a change in the wind direction that had not been forecast. They crashed on the Yorkshire moors just above Kibby Malzeard, killing the Navigator. Pod, himself, suffered head injuries, a broken arm and crushed foot but managed to drag the unconscious Wireless Operator from the burning aircraft before collapsing. He was hospitalised for five months.

Jack first flew as Navigator with Pod on 19 August 1942 and they were still attached to the conversion flight on 26 August 1942 when 10 Sqn moved to RAF Melbourne.

²⁸ Many of the aircraft Jack had flown with 10 Sqn were lost in later operations. Where we have been able to verify the information, we have linked (i.e. underlined) any mention of the aircraft he had flown to accounts recording their loss. Notwithstanding the crews lost with those aircraft, Jack may have wondered how lucky to have not flown those aircraft on their last fateful journey.

To RAF Melbourne, Yorkshire²⁹

Their first operation was on 10 September 1942 to Dusseldorf with a 1000 lbs bomb + 12 small bomb canisters (SBC's). Over Dusseldorf, their Halifax W1116 was held by searchlights and badly damaged by anti-aircraft fire, but there is no mention of this in Jack's Log book. Had Jack, by now, become battle hardened? Many of the Halifaxes he had previously flown had been lost with most of the crew; he had survived.

It is worth noting, given Jack's impending move to the PFF, that Pathfinders³⁰ successfully marked the target, using 'Pink Pansies'³¹ in converted 4,000 lbs bomb casings for the first time. All parts of Düsseldorf except the north of the city were hit as well as the neighbouring town of Neuss. 39 industrial firms in Düsseldorf and 13 in Neuss were damaged so much that all production ceased for various periods. This was a much better result, and within weeks of the PFF forming.

It was a month before Jack's next operational flight³², but meanwhile there was much ferrying of aircraft between airfields: East Moor; West Raynham; Pocklington and Downham Market. Also, there was much low flying³³ and air firing practise.

On 13 October 1942, Jack took off at 6:40 pm for Kiel in Halifax W7869 with 3x1000 lbs bombs +12 SBC's. 288 aircraft - 100 Wellingtons, 82 Lancasters, 78 Halifaxes and 28 Stirlings. Eight aircraft - five Wellingtons and one each of other types were lost, 2.8 per cent of the force. A decoy fire site was operating and at least half of the bombing was drawn away into open countryside, but the rest of the attack fell on Kiel and its immediate surroundings. Casualties were 41 killed and 101 injured.

Two days later, the target was Koln with 3x1000 lbs bombs + 11 SBC's in a force of 289 aircraft. 18 aircraft were lost, 6.2 per cent of the force. This was not a successful raid. Winds were different from those forecast and the Pathfinders had difficulty in establishing their position and marking the target sufficiently to attract the Main Force away from a large decoy fire site which received most of the bombs.

A week later on 23 October 1942, still with Halifax W7869 (an aircraft that managed to survive until 15 February 1945 when it was lost at an HCU³⁴), Jack and crew took off at 6:15 pm for Genoa Italy with a 1000 lbs bomb + eight SBC's, in a force comprising 122 aircraft. The target area was found to be almost completely cloud-covered and it was later discovered that the raid had actually fallen on the town of Savona, 30 miles along the coast from Genoa. Several aircraft bombed Turin. Jack's aircraft landed on the return at RAF Holme-on-Spalding Moor in the East Riding of Yorkshire and it was not until December that they flew in W7869 again and hence it had presumably suffered some fault or damage requiring extensive repair.

²⁹ Appendix 1 gives more details on each of the establishments where Jack trained or served.

³⁰ This is the first reference we have found of Jack working with the newly formed PFF, of which he was soon to become part.

³¹ Pink Pansies was a colloquial name for one of the PFF Target Indicators.

³² Had Jack been recuperating from an injury suffered on 10 September mission?

³³ Low flying was not normally used and it was not until Leonard Cheshire VC, when commanding 617 Sqn during 1943/4, that the technique was perfected and adopted with deadly accuracy.

³⁴ HCU - Heavy (bomber aircraft) Conversion Units forming in late 1941 to qualify crews trained on medium bombers (e.g. Hampdens, Wellingtons) to operate the heavy bombers (e.g. Halifaxes, Lancasters), prior to assignment to an OTU, to gain experience before final posting to the operational sqns.

On 20 November 1942, using Halifax BB248 with one 1000 lbs bomb + nine SBC's taking off at the earlier time of 5:30 pm, it was the turn of Turin to be visited by 232 aircraft on the largest raid to Italy during this period. Three aircraft - one Halifax, one Stirling and one Wellington - were lost. This was another successful attack, with large fires being started. Jack's BB248 landed on the return at RAF Snaith, but this time the stop over was not for long, returning to RAF Melbourne after a 5 hour rest.

Halifax BB248 was used again on 22 November 1942 for a trip to Stuttgart with a 1000 lbs bomb, a 500 lbs bomb and eight SBC's, within a force of 222 aircraft. 10 aircraft - five Lancasters, three Wellingtons and two Halifaxes were lost, 4.5 per cent of the force. BB248 returned on three engines and no hydraulics, whether due to battle damage or a malfunction is not clear. Jack had survived another 'life threatening' incident.

On 28 November 1942, the next operational trip was a return visit to Turin with another aircraft, Halifax BB220, taking a 5x1000 lbs bomb load, in a force of 228 aircraft. Two Stirlings and one Wellington were lost. Part of the force released their bombs before the Pathfinders were ready, but the remainder carried out very accurate bombing, some of it around the Royal Arsenal. Turin recorded 67 people killed and 83 injured. On the return, BB220 was repeatedly attacked by an enemy Me109 fighter, but eventually the Rear Gunner shot it down and they landed at Newmarket. After a wait of about 10 hours they flew BB220 back to Melbourne.

Halifax W7869 returned into use on 6 December 1942 and was flown to Mannheim with 2x1000 lbs bombs +10 SBC's, within a force of 272 aircraft. 10 aircraft were lost, 3.1 per cent of the force, and four more aircraft crashed in England. The target area was found to be completely cloud-covered. Most of the Pathfinders withheld their flares and many of the 220 crews who bombed the target did so on dead-reckoning positions.

Another visit to Turin in Halifax II W7869 followed on 9 December 1942, armed with a 1000 lbs bomb + eight SBC's and as part of a force comprising 227 aircraft. Two Wellingtons and one Lancaster were lost. This was a disappointing raid with the Pathfinders not able to perform as efficiently as on the previous night.

Jack was rested from flying for the next 10 days, although presumably their aircraft was not as their first task on his return was to pick up W7869 from RAF Manston and bring it back to Melbourne.

In the new year, 9 January 1943, Pod with Jack as Navigator were off early in the evening at 4:00 pm mine laying ("gardening") in Halifax W7869 taking 2x1500 lbs mines to Kattegat, in a force of 121 aircraft. This is a sea area bounded by the Jutland peninsula and the Straits islands of Denmark on the west and south, and the provinces of Västergötland, Scania, Halland and Bohuslän in Sweden on the east.

On 14 January 1943, Pod and Jack took a different aircraft Halifax DT540 to Lorient, armed with a 2000 lbs bomb + 12 SBC's as part of a force comprising 122 aircraft. The Pathfinder marking of the target was accurate, but later bombing by the Main Force was described as 'wild'. On the return, DT540 landed at RAF Colerne and flew back to Melbourne after lunch on the 15 January.

[Amongst Jack's records retrieved by Eddie Vickers was his promotion record. This shows that Jack was granted a commission, unusually mid-tour, and promoted to Plt Off on 19 January 1943³⁵. His record carries the annotation "Granted comn. for the emergency as Plt Off (Ex-Sgt) in GD Branch RAFVR"; this is the first tangible clue that Jack had impressed those in authority.]

³⁵ All promotions, honours and awards in the armed services are announced in the London Gazette, often referred to as "Gazetted".

Reunited with “their” Halifax W7869, their next operational trip was back to Lorient with a bomb load of 5x1000 lbs bombs, on the 23 January 1943 in a force of 121 aircraft successfully bombing the target area in good visibility. One Stirling was lost.

Jack's last flight with Pod Harrison in Halifax W7869 was a 3 hour 15 mins cross-country flight, after which they parted company. Pod went on to serve with distinction for the rest of the war flying Halifaxes and returned to New Zealand afterwards. He died at Waipukurau, Hawkes Bay on 12 August 1998.

Jack flew one more operational trip with 10 Sqn on 3 February 1943. It would have been his 23 trip and was on Halifax W7678, which was lost a month later flying with 76 Sqn. His Pilot was Flt Lt Kenneth Munro RAAF, later DFC* and killed on 1 July 1943 in an Oxford X6858 during a low level training exercise from 3 Flying Instructors School, Hullavington, having struck tree tops. Their intended target was Hamburg, but the bad weather forced them to return to base when they were 10 miles off the enemy coast.

Reflecting on Jack’s Progress with 10 Sqn

In Summary, Jack flew on 23 missions with 10 Sqn, taking part in all three ‘1000 Bomber’ raids that heralded the arrival of the WWII RAF Strategic Bomber Offensive orchestrated by its pioneering AOC-in-C Sir Arthur ‘Bomber’ Harris. The second of these three missions almost ended in disaster for Jack as he and his crew members ditched into the North Sea, being rescued three days later in a concerted rescue mission by Hudson aircraft and RAF Rescue launches, and under the threatening eyes of the Luftwaffe intent on using Jack as bait to destroy more RAF assets.

The overriding impression of this period in Jack’s service with 10 Sqn is the toll in lives and aircraft lost for comparatively little return in bombing success. Bomber Command had yet to consistently deliver the effectiveness sought by the Butt and Cherwell Reports and the success expected from the new and more capable Lancaster bomber, the advanced technology in GEE, Oboe and H2S and their crews. The first signs were beginning to emerge towards the end of Jack’s tour with 10 Sqn, when the PFF was beginning to make an impact. One can only imagine how Jack and his fellow crews felt at this time, probably continued optimism tarnished by the loss of so many friends. However, partly by luck, he had flown in the “right aircraft” and had survived a very low point in Bomber Command’s history.

His luck was not to end there; he had already been noticed by a departing OC 10 Sqn who had been tasked in August 1941 by Harris to form the elite PFF. The PFF was now beginning to assert itself and to deliver, but it needed more experienced crew of high calibre. The average number of bombing missions before a posting was 30 and, having conducted only 23, Jack’s commissioning as an officer and posting after just 12 months suggests that the RAF and, maybe, Bennett had other plans for him. Whether this in fact is true is difficult to assess, but it is clear that the next six months would prepare him for an impressive contribution to the RAF’s war effort. His commissioning, rapid promotion and his imminent selection for the PFF are, in our opinion, clear indications that Jack had been noticed.

Chapter 4 - 'Headhunted'

[Research courtesy of EG Vickers; RAF insight, IBM Steward.]

The Strategic Air Offensive Evolves

Shortly after his perhaps unexpected {to him} commissioning and promotion to Plt Off, Jack was to leave 10 Sqn operations for pastures new, the RAF having short-listed him for navigator duties as a commissioned officer³⁶.

This was to be preceded by a brace of 'Business As Usual' HCU tours as a navigator training instructor - a typical non-operational 'break' after a sustained period of operational missions - whilst the RAF postings authority decided his next operational appointment; but the second tour would be foreshortened. It is not clear whether Jack was privy to the RAF's plans for him at this stage, or whether he just assumed that he was being given a break from operational missions; he had completed fewer than the average number of missions before such a 'relief' tour of duty. In any event, the RAF plans were to change, with the emergence of the PFF, its new aircraft, nav aids and bomb aiming techniques, as the guiding force for future Bomber Command missions.

Jack had impressed on 10 Sqn, not least his former CO and new Commander of the PFF.

2 School of Advanced Navigation (2 ANS) RAF Cranage

On 5 February 1943, Jack arrived at 2 School of Advanced Navigation, part of 1658 Conversion Unit (a HCU for Halifax bombers,) at RAF Cranage, which from 1943 became the home for all specialist RAF air navigation training during WWII.

Here, he flew cross-country in Ansons accumulating 26¼ hours by day and 8¼ hours at night with an assortment of pilots : Sgt Bartman; Sgt Besant; Sgt Chambers; Sgt Double; Sgt Johnston; Sgt Lane; Sgt Rathbone; Fg Off Rees; Sgt Sergeant; Sgt Stevenson; Sgt Strange; Plt Off Wright.

The course lasted 10 weeks, but the precise curriculum is unknown. We are unable to confirm the nature of this course, but suspect that it was given to experienced navigators to develop instructional techniques ahead of assuming a role **as** a qualified instructor.

His movements records were annotated "Nav. Instr. (F/O)" for both this tour and his next at 1663 HCU.

1663 HCU RAF Rufforth, North Yorkshire

On 25 April 1943, Jack was posted to RAF Rufforth, where we believe it was intended that he complete a 'full tour' as a qualified instructor.

During the 3 months he was there, however, he only flew 6 flights, all on Halifax aircraft, acting as the Screen Navigator for cross country and fighter affiliation. These flights were with 5 different pilots: Fg Off Goulding; Plt Off Hampton³⁷; Sgt Lambert; Fg Off Milmine and Plt Off Somerscales, involving 9 hours night and 11 hours day time flights.

If he wasn't instructing, what was Jack doing?

³⁶ It was not unusual for NCO aircrew to be commissioned later in their flying careers, but would be dependent on their exhibiting leadership qualities worthy of a commission.

³⁷ We are unsure if this Plt Off Hampton was also the 2nd Pilot sharing the dinghy with Jack a year before when they ditched on return from the second 1000 Bomber raid- see Annex B.

The comparative lack of flying activity was unusual, to say the least, given the RAF was still intent on improving its targeting and bombing efficiency and there was a constant demand to train many more navigators. But the PFF was also expanding rapidly and keen to attract the very best, experienced navigators. Bennett had taken Gp Capt Hamish Mahaddie off his early operational duties with the embryonic PFF and moved him to his HQ at Huntingdon, as his No 1 Personnel Officer to complete the resourcing of the PFF; Mahaddie was not enamoured at being taken off operational duties, but “orders is orders”

We now speculate about what actually happened in this three month period before Jack was eventually posted to 1665 MTU³⁸ and thence to 105 Sqn. Our research suggests that, whilst at 1663 HCU, Jack may have been “watched” by Mahaddie, while he was visiting Bomber Command stations on the search for able candidates to join the PFF. Mahaddie had a reputation as a head-hunter for the PFF, set up by Don Bennett, the now Air Officer Commanding 8 Group³⁹ and Jack’s former Sqn Commander on 10 Sqn. Was it possible that Bennett had suggested that he check on Jack’s progress and suitability, particularly now that Jack had been taken from the front line?

Whatever the reality, Derek Ransom in his booklet *Battle Axe - A History of 105 Squadron Royal Air Force*, gives a splendid account of the hoops through which Jack would have had to jump in order to become a member of the elite:

“Entry into the Path Finder Force was regarded as a high privilege and was strictly controlled. Only the best crews were selected, and this originally led to a certain feeling against the PFF, as Squadron Commanders were loath to let their best crews go to an elite force. In the early days, AVM Bennett, the great proponent⁴⁰ of the idea, would personally interview each applicant.”

Each successful applicant, regardless of trade/branch, would be awarded⁴¹ a badge, a gilt eagle worn on the left breast pocket under medals and brevet denoting their branch. This badge increased the resentment and ill feeling amongst other Bomber Command crews, with some unsuccessful attempts to ban it. The badge was only worn whilst the owner was on operational PFF duties and it was relinquished at ‘Tour-ex’⁴². As Ransom explains:



“Opposition to the PFF soon dwindled when the results were seen, and photos showed that more and more targets were being not merely damaged but totally destroyed. A “Study of Operational Research in the RAF” published by the HMSO gives us the facts and figures. In March 1943, before the introduction of Oboe ground marking, only 26% of the identified targets photographs were within 3 miles of the aiming point. In June 1943⁴³, after Oboe was introduced, the percentage had risen to 50% and, by October 1944, when more squadrons were using the system, the percentage was nearly 80%. This success cannot, of course, be claimed by Oboe alone. Better navigational techniques and tactics, improved aircraft and equipment, and high morale were among other factors⁴⁴.”

³⁸ MTU - Mosquito Training Unit

³⁹ The PFF had by now established itself as an autonomous Group within Bomber Command.

⁴⁰ Proponent but not Proposed — that was Hal Bufton.

⁴¹ The notification of the award of the badge to Jack is at Annex C.

⁴² Tour-ex means the end of a specific tour of duty.

⁴³ The month when Jack was being considered for the PFF

⁴⁴ Including better trained navigators at the relevant Conversion and Training Units.

Against this backdrop of a rapid evolution of the PFF, Jack will have undergone a full assessment including the forensic interview with Bennett ahead of selection and training for PFF sqn operations. Within three months of his Navigator Instructor training, Jack's career had taken a new turn as he was posted to 1655 MTU at RAF Waterbeach on 26 July 1943, thence to the MTU's new home at RAF Marham two days later. This was also the home of 105 Sqn with whom Jack would serve till 23 March 1944.

1665 Mosquito Training Unit (1665 MTU)

The formation of 1655 MTU, a PFF specific training unit, and its transfer to Marham was part of a general restructuring of Bomber Command that included a trade-off of some of its sqns to the newly formed 2TAF⁴⁵, in readiness for the new Western front and D-Day. The PFF also needed more Mosquito sqns, more of which will be discussed in the next chapter. So, Jack had arrived at a time of some considerable churn within Bomber Command, but, as we shall see, it would be the making of him; it quite possibly had been a whirlwind three months for him, but would herald an impressive spell in the PFF.

The PFF, quite apart from its self-ordained elite status, was very different from the rest of Bomber Command in terms of structure, aircraft, equipment and crew. Before we review his operations on 105 Sqn, we now review Jack's new operational environment.

The Aircraft - Mosquito ("Mossie")

Unlike previous aircraft in which Jack had flown, the Mosquito required only two crew - the pilot and the navigator. This meant that the pair would invariably develop a very special bond between each other and their aircraft, as they coped with the operational mission to bomb or mark targets and to guide the main bombing force.



De Havilland Mosquito

To get in to the aircraft, you had to climb a thin rickety, telescopic, red metal ladder which, at any moment, would de-telescope. There was a navigation table that slid out from the panel at the front of the cockpit which would then fall out and hence all Mosquito navigators ignored it. They

clipped their Mercator charts to a piece of board that rested on their knees like a tea-tray.

Navigating was described as "like being at a nightmare party for afternoon tea as you juggled not with cup, saucer, plate and cucumber sandwiches but with dividers, protractors and maps from the jumble in the canvas satchel at your feet".

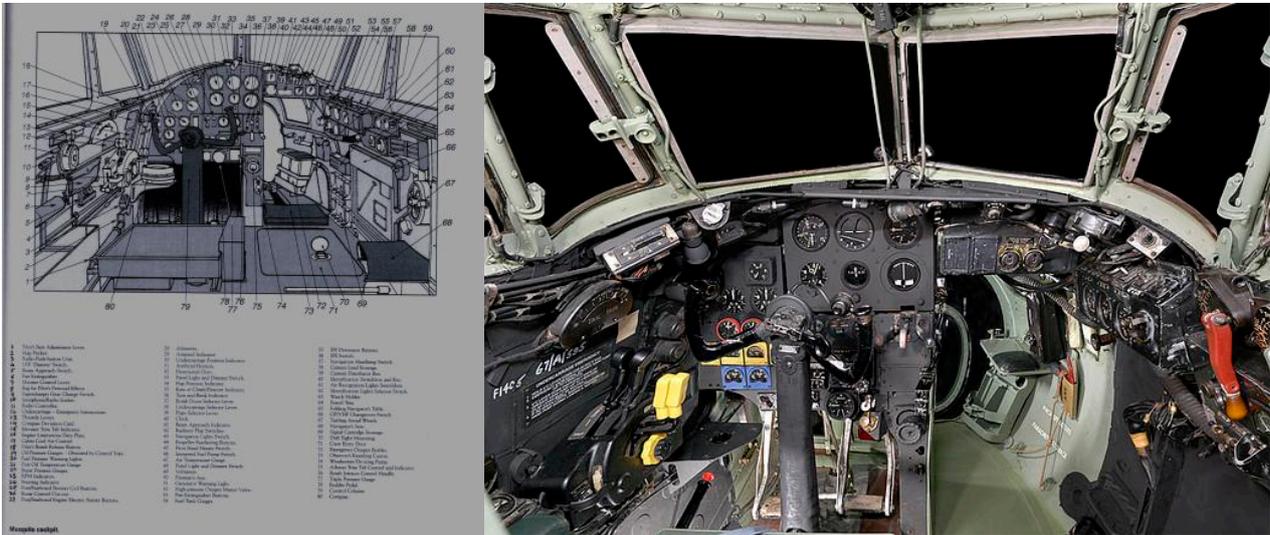
Near the IFF⁴⁶ set was a reel of wire that was unwound for the long wave radio aerial, this had to be wound in before landing. There was a Verey pistol⁴⁷ and a horizontal wheel, marked in compass degrees and which rotates the directional loop aerial for bearings. There was a morse key and radio receiver.

⁴⁵ 2TAF - 2 Tactical Air Force formed in readiness for D Day.

⁴⁶ IFF - Identification Friend or Foe transponder system which 'squawked' a pre-determined code to the ground station to confirm 'Friendly' aircraft.

⁴⁷ Verey pistol - a pistol that would fire a 'rescue' flare.

In the Perspex nose was a Mk IX bombsight, a kneeling pad, a box with four fusing switches and a bomb release button on its cable. Also, there was a pull-out lever very clearly marked JETTISON, which was always yanked after the bombs had supposedly gone and before the bomb doors were closed.



Cockpit Layout - zoom in to read legend in left graphic

To bale out, the navigator cleared the entrance hatch, clipping his parachute to his chest and exited the aircraft. The pilot then either followed through this hatch or he could exit through an escape hatch in the canopy above him. On some Mosquito variants, there were switches for the fuel tanks situated between the pilot and navigator and it was not unknown for the latter to lean forward and catch the switches with his harness and, if at low altitude, the aircraft dove into the ground.

Navigation Aids - GEE, Oboe and H2S

GEE was the code name given to a radio navigation system used by the RAF from 1942, coinciding with the introduction of Bomber Command's workhorse Lancaster aircraft and its iconic AOC-in-C 'Bomber' Harris.



GEE measured the time delay between two radio signals to produce a "fix". It was the first hyperbolic navigation system to be used operationally. GEE was devised by Robert Dippy and developed at the Telecommunications Research Establishment (TRE) at Swanage. GEE was originally designed as a short-range blind landing system to improve safety during night operations, but it developed into a long-range general navigation system. For large fixed targets, like the cities that were attacked at night, GEE offered enough

accuracy to be used as an aiming reference without the need to use a bombsight or other

external reference. Jamming reduced its usefulness as a bombing aid, but it remained in use as a navigational aid in the UK area throughout the war.

Oboe used two stations at different and well-separated locations in England, to transmit a signal to a Mosquito Pathfinder bomber carrying a radio transponder. The transponder re-transmitted the signals, which were then received by the two stations. The round-trip time of each signal gave the distance to the bomber.



Oboe Ground Station



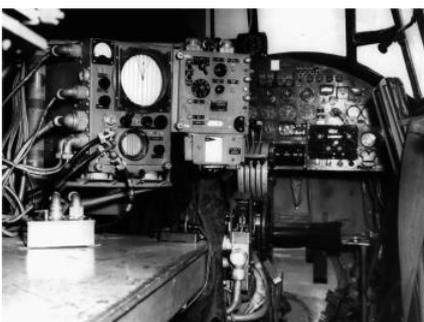
Oboe Airborne Station

Each Oboe station used radio ranging to define a circle of specific radius, with the intersection of the two circles pinpointing the target. The Mosquito flew along the circumference of the circle defined by one station, known as the "Cat", and dropped its load (either bombs, or marking flares, depending on the mission) when it reached the intersection with the circle defined by another station, known as

"Mouse". There was a network of Oboe stations over southern England, and any of the stations could be operated as a Cat or a Mouse as the need demanded. The initial "Mark I" Oboe was derived from Chain Home Low technology, operating at upper-range VHF frequencies of 1.5 meters / 200 MHz.

The two Oboe ground stations emitted a series of pulses at a rate of about 133 per second. The pulse width could be made short or long so it was received by the aircraft as a Morse code dot or dash. The Cat station sent continuous dots if the aircraft was too close and continuous dashes if the aircraft was too far, and from these the pilot could make the needed course corrections. [This was a similar radio navigation technique exploited by the Luftwaffe - Knickebein (Crooked Leg) - and discovered by RV Jones at Bletchley Park.] Various Morse letters could also be sent, for example to notify the aircraft crew that the Mosquito was within a specific range of the target. The Mouse station sent five dots and a dash to indicate bomb release. The Mouse station included a bombsight

computer, known as "Micestro", to determine the proper release time, there being no particular logic in carrying the bombsight on the Mosquito when it was under the control of the ground station. Mosquitos with Oboe were known as "Musical" whilst those without were "Non-Musical".



H2S equipment on the left

The third of a triad of radio navigation systems that enhanced Bomber Command operations was H2S,⁴⁸ an airborne, ground scanning radar system that could be employed outside the range capabilities of GEE and Oboe. Bomber Command navigation drills distinguished between H2S and non-H2S sqns, with the former usually forming the vanguard. Except for the Mosquito, H2S

equipped aircraft carried a plotter as well as a navigator.

⁴⁸ H2S was introduced at approximately the same time as *OBOE*. It was originally known as 'BN' for blind navigation. Since these latter initials indicated the potential use for this radar system a name change was inevitable. The name was said to have been chosen by Lord Cherwell to suggest 'Home Sweet Home' as homing onto a target; not H₂S (Hydrogen Sulphide) which was commonly believed to be its origin.

H2S transmitted a directional beam of high-energy impulses outwards and downwards from the aircraft towards the ground. Reflections of its own impulses received from the ground were received through the aircraft's H2S aerial, fed into a receiver, and eventually showed up as bright spots on the screen in front of the navigator.

Multiple signals joining up painted a map on that screen, showing details of the terrain within the equipment's scanning range. Being entirely an airborne system, it had distinct advantages over GEE and Oboe on the longer range missions.

Techniques & Tactics

There is no doubt that the formation of the PFF was a turning point in Bomber Command and RAF fortunes during WWII. If the Butt and Cherwell Reports were the drivers for change, the adoption of new technologies, techniques and tactics, including the counter and count-counter measures, were the catalysts transforming the approach to strategic and tactical bombing missions. We shall see that, when operating with 105 Sqn, Jack was to encounter a constant stream of changes in targets, missions and techniques, with 66 operational missions at night underpinned by almost four times as many day time NFT⁴⁹ exercises to finesse the new techniques. We shall also see how he excelled.

There is much written on the PFF and the techniques and tactics employed by the PFF since its formation in August 1942, initially to support Bomber Command's strategic air offensive and later to support 2TAF before, during and after D-Day. Most accounts are technical, complex and take some understanding. Here, we offer a simplified explanation⁵⁰ of how those techniques evolved, exploiting the comments of aircrew at sqn level, where many of those techniques or 'systems' first emerged by 'trial and error'.

The first system was codenamed '*SHAKER*' and proceeded in three stages, First, highly skilled, nominated crews and aircraft called '*Illuminators*' dropped parachute flares over the target. They were followed by '*Finders*' who would drop incendiaries on the target. Finally, the '*Followers*' would bomb the target. This method formed the basis of three future systems that became the mainstay of future PFF operations.

The first evolution was '*Newhaven*' where flares would be dropped by the first pathfinders in a raid, using H2S or Oboe ('*Musical Newhaven*'). The second wave of pathfinders ('*Markers*') would drop target indicators on the target. These were special pyrotechnic devices, of differing colours (e.g. Red, Green, Yellow) and there were varying techniques for deploying them, but the main purpose was to provide a target envelope for the main force to bomb. It was to be used to devastating effect in the first wave of a famous attack on Dresden.

'*Parmatta*' was a development of '*Newhaven*'. The attack would open with pathfinders dropping target indicators on the target. The main force would bomb the target indicators which would be 'backed up' by imaginatively named '*Backers Up*', or adjusted as the raid progressed. As with '*Newhaven*', the ground and therefore the target had to be visible. This was frequently not the case.

'*Wanganui*' was used when the ground was not visible in poor weather. It was a method of '*sky marking*' where pathfinders would drop parachute target indicators over the target, determined by navigation systems (GEE, Oboe, H2S), and above the cloud. The 'sky marking' device was called a '*Floater*' and ejected candles of varying colour, chosen just

⁴⁹ Later on this Chapter, we shall see that Jack and Robert conducted an extensive series of NFT during short daytime exercises.

⁵⁰ Explanations courtesy of Quora (Steven Rusling) and extracts from Guy Gibson's autobiography, Enemy Coast Ahead.

before take-off and depending on the amount of cloud cover forecast over the target area, making it inherently immune to counter-measures.

Dambuster Guy Gibson (later VC) recounts an informal conversation he, as OC 106 Sqn, and some of his sqn had with a member of 83 Sqn, who had just been selected for early PFF missions. The conversation is reproduced verbatim as it resonates with the routine experience that Jack would shortly encounter.

106 Sqn Flt Cdr: “.....what are the conditions of the Pathfinder Service.”

83 Sqn member: “As far as I know, we can do 30 trips, or even 60 trips without a rest, but have to give up when we are tired, and no one will call it lack of moral fibre⁵¹. When we are qualified Pathfinders - *which means 10 trips as an Illuminator*⁵² - we are allowed to wear a special pair of gold wings underneath our ribbons.”

At this, there was a chorus of *sarcastic cheers*.

“What is an illuminator?”

Perhaps I had better explain the whole procedure. The *new crews merely carry incendiary bombs and no flares at all*, but they attack in front of the main force, so that the incendiaries fall accurately on the target. The next lot of crews carry a full load of flares. The job of these boys is to find the target, and so they are called the ‘Finders’. They fly out on a course extremely accurately, keeping to dead reckoning, and when the ETA is up, they begin to drop a flare every 30 seconds, and so a long line of country is illuminated for perhaps 10 miles. Meanwhile, the other Finders will spread out on either side, so that when zero hour arrives, the whole German countryside for ten miles square is illuminated. Not very well, but enough for the next crowd of boys to see.”

Gibson: “*And the best crews?*”

83 Sqn member: “*They carry bundles of flares*⁵³, which they drop the moment they see the aiming point. In fact, they try to drop them on top of the aiming point. They fly right with the Finders, and they themselves are called the ‘*Illuminators*’. When they see where the target is, they drop a few flares in a certain pattern, and the rest of the Pathfinders immediately come along and dump hundreds of flares right over the target, which will illuminate it, we hope, like daylight.”

Gibson: ‘How about cloud?’

83 Sqn member: “We haven’t got the answer to that yet⁵⁴.....”

The text highlighted above in red aligns with specific developments in Jack’s experience with 105 Sqn, his progress as a PFF navigator, getting his “gold wings” after 10 missions, conducting his early missions with a payload of 500 lbs bombs, moving to missions on later variants of Mosquitos with a variety of TIs to deploy (i.e. Red, Green, Yellow) depending on the weather forecast and the amount of cloud cover.

⁵¹ Bomber Harris had issued orders suggesting absences from missions should be investigated as potential LMF. Jack was to fly 66 missions with little rest.

⁵² This should mean after 10 trips on PFF missions; qualification as an Illuminator came later.

⁵³ The majority of Jack’s missions from Bourn and a few towards the end of the period at Marham.

⁵⁴ Pre-Wanganui, soon after PFF fired in August 1942.

The Pilot and 'Skipper' - Flt Lt RB Castle

After about a month of separate training for the pilots and navigators, the latter on Airspeed Oxfords, they were all put in a room together and left to pair up as a crew.

Jack teamed up with Fg Off Robert Breedlove Castle, which must have been a good choice as over the next 10 months they flew on 64 operations together out of the 66 operations that Jack flew with the Pathfinders.

Robert was born in China on 18 July 1915, where his father was a missionary and before the war he was a teacher like those in Jack's family. Jack's first flight in the Mosquito was on 24 August 1943 and there were a further 6 weeks of flying together on Oxfords and Mosquitos followed by set exercises and cross countries.

The Navigator - Jack

On joining 1655 MTU⁵⁵ in July 1943, Jack completed four cross-country training and exercise flights, with three pilots: Fg Off Jackman, 1hr 30 mins "Screen Navigation" across country; Fg Off Forder, 1 hr 40 mins "Screen Navigation" across country; Flt Lt Macdonald, two 'Exercise' flights of 2hrs 15 mins and 2 hrs respectively.



Decompression Centre

Starting with a local familiarisation flight in a Mossie on 28 August 1943, the Castle/Griffiths partnership that was to endure for the next 10 months had been formed.

On 29 August 1943, Jack underwent an obligatory decompression test; 37,000ft for two hours was achieved with no ill effects.

The Castle/Griffiths pair were to complete 31 further training flights until

30 October 1943, in a combination of Oxford and Mosquito aircraft, amassing some 40 hours 15 mins day time flying and 5 hrs 20 mins night flying,. On completion at No.1655 MTU, Wg Cdr Joseph Roy George Ralston, the CO, signed them off and they joined 105 Sqn also at Marham.

However, such was the rapid evolution in technology enhancements fuelled by the 'cat and mouse' advances in Electronic Warfare⁵⁶, Robert and Jack in particular would complete a constant stream of short training missions whilst on 105 Sqn, honing their skills throughout their tour of duty. Shortly before, they transferred to the new base for 105 Sqn, Bourn, they would be cleared to conduct Target Marking missions as an 'Illuminator' crew.

⁵⁵ This was Conversion-to-Type training, learning to use Mosquito avionics.

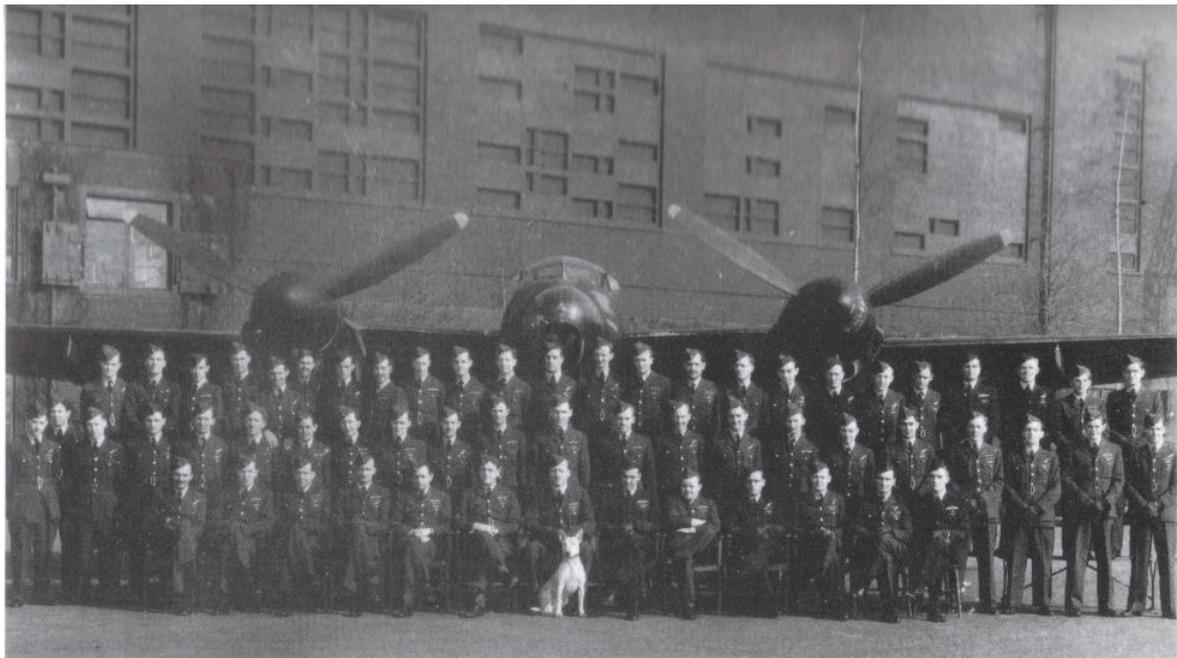
⁵⁶ The introduction of radar guided systems such as the Knickebein system and the RAF's GEE, Oboe and H2S systems was accompanied by the introduction of passive (e.g. Window) and active (i.e. jamming) countermeasures and the system upgrades as counter-counter measures. RV Jones in his book "The Most Secret War" gives an authoritative account of the birth of Electronic Warfare, starting with Operation *Headache* to confirm the existence of the Knickebein system and Operation *Aspirin* to counter it.

Chapter 5 - One Of The PFF Elite

[Research courtesy of EG Vickers; RAF insight, IBM Steward.]

The Air Campaign - Shifting Emphasis

While Robert and Jack were establishing a *modus operandi* as a newly formed PFF Crew on 1655 MTU, Harris was switching his emphasis for Bomber Command operations. The year had already started with an increased emphasis of {reluctantly} combined operations with the RAF's Second Tactical Air Force (2TAF)⁵⁷ under Air Marshal Coningham and also with the USAF. In July, the four month onslaught on the Ruhr - epitomised by the audacious Dambusters raid - ended and attention turned to other big cities, initially Hamburg and Berlin and, when these ran into trouble from enemy 'Wild Sau' and 'Schrage Music' tactics⁵⁸, widened to include Mannheim, Hannover, Kessel and Frankfurt to reduce Bomber Command losses and to stretch the German defences. For the next eight months, Harris pursued his strategic air offensive amid growing tensions with other air commanders as 2TAF and the USAF made preparations for air coverage of the allied invasion, D-Day, in June 1944. For Harris, this was the thin end of the wedge as more and more of his strategic bomber force was assigned to tactical operations the closer D-Day approached.



*No. 105 Squadron in front of Mosquito 'V' at Marham with W/C Henry John Cundall with his dog.
(Via W.E.G. Humphrey/Bill Riley)*

At this time, 105 Sqn was commanded by Wg Cdr Henry John Cundall, a pre-war RAF Cranwell graduate - a 'Cranwellian' - who remained in the Service after the war to fly jets (e.g. Gloster Meteor and English Electric Canberra), retired in 1961 and died on 29 December 2001.

⁵⁷ 2TAF was formed on 1 June 1943 as HQ Tactical Air Force from Army Co-operation Command, in connection with preparations then in train to invade Europe a year later.

⁵⁸ 'Wild Sau' - freelance single engined fighters sent up to counter 'window' - and 'Schrage Music' (or Juke Box) - upward fringe armament into the vulnerable belly of the Lancaster.

Since joining 8 Group on 1 June, 105 Sqn had been getting up to speed with Oboe and improving its 'target marking' operations, providing Wanganui 'sky-marking'⁵⁹ alongside 109 Sqn for the first time. The 105 Sqn leader on that first mission was Sqn Ldr William Walter Blessing RAAF⁶⁰, 105 Sqn's 'A' Flight Commander to whom Robert and Jack would report for duty.



BLESSING

As we shall see, Robert and Jack would be employed on a combination of bombing and target marking missions, punctuated by a number of 'Special Duties' missions, and underpinned by countless short, day time flights to hone their Oboe led bombing and TI skills. Whether it was a reflection of the sqn's tasking or the level of expertise that Robert and Jack had developed {more likely}, but it is evident that they were predominantly employed on bombing missions for the first five months, thereafter employed increasingly on target marking operations for the main bombing force. The

implication is that it took considerable time to develop 'Illuminator' skills to an acceptable level upon which the main force and hence the entire mission could rely.

Intensive, Continuous On-The-Job Training (OJT)

It is not unusual for RAF personnel, having completed a formal course of training, to undertake further On-The-Job Training (OJT), to update and hone skills first developed at a training establishment or conversion unit. So it was with Robert and Jack once they had joined 105 Sqn. The pair conducted no fewer than 105 OJT flights - ironic given they flew with 105 Sqn - usually between 25 and 40 minutes at day time, albeit annotated as Night Flying Training (NFT)⁶¹. There are a variety of reasons for this, the most obvious being to maintain their currency and expertise on existing equipment and techniques.

However, we venture to suggest, without tangible evidence to support it, that Jack in particular was encountering new updates to equipment and developing new skills as a consequence of the cat and mouse nature of warfare that was exploiting new advances in technology and measures to counter them. If our hypothesis is correct, Jack would have thrived in this environment; the results suggest he did.

Missions from Marham - 18 Oct 43 to 23 Mar 44

Annex E gives a dissertation from Eddie Vickers on the bombing missions conducted from Marham between 18 October 1943 and 23 March 1944. These missions are a direct manifestation of the big push that Harris had ordered on German cities throughout this period. The Log Book entries record date, time, aircraft, pilot, duty (i.e. navigator), destination⁶², outcome (e.g. DCO⁶³) and flying time.

⁵⁹ "Wanganui" – target marking by blind-dropped sky markers when ground concealed by cloud, prefixed with "Musical" when Oboe-guided.

⁶⁰ Blessing was killed on 7 July 1944 when he was shot down by an enemy fighter whilst attacking Caen.

⁶¹ Later in this Chapter, we shall see that Jack and Robert conducted an extensive series of NFT during short daytime exercises.

⁶² The mission entries included a suffix which appear to enumerate all the official operations conducted by Jack, probably to see a tally to support his entitlement to campaign medals such as the 1939/45 Star and the Air Crew Europe Star for which he also received a Bar/Rosette.

⁶³ DCO - Duty Carried Out

During this period, the pair were to complete 43 missions, all at night, against German cities usually using a payload of four to six 500 lbs bombs. The cities to be pounded were: Aachen (5 times); Bochum (twice in three consecutive missions); Deelon (1); Dieren (1); Duisburg (5); Dusseldorf (5); Elberfeld (seven times in 11 consecutive missions); Essen (1); Gilze-Rijen (1); Hamborn (two consecutive missions); Knapsack (2); Le Mans (1); Leverhusen (3); Munchen-Gladbach (1); Rheinhausen (2); St Trond (3); Witten (1).

Target marking was employed by them - as *qualified* 'Illuminators' - for the first time on 4 and 5 March against Dusseldorf and Duisburg. It is not entirely clear why Robert and Jack were employed on target marking for the majority of missions from this time, whether a change in the RAF's targeting priorities, or a change in the sqn's tasking having completed extensive Oboe training, or after extensive OJT Robert and Jack were now cleared to complete TI activity; very probably because they began to excel at it.

All entries are annotated DCO, flying times varying between 2 hours 20 minutes and 3 hours 40 minutes. Jack's entries were accurate and succinct, reflecting the routine nature of the bombing runs. The loss of many of his colleagues, which must have been distressing, was never mentioned in his log book, but will have been recorded by OC 105 Sqn in the sqn's Operations Record Book (ORB) F540⁶⁴.

Occasionally, there was an annotation in Jack's flying log book if they landed away from base (e.g. to Wyton on 9 November), or crashed on landing as they did returning from Aachen on 18 November. The only incident Jack records is this runway overshoot returning from Aachen, after which the 'wooden' aircraft was recorded damaged BER⁶⁵.

To all intents and purposes, Robert and Jack were fulfilling their duties expected of them. The Imperial War Museum (IWM) records that Bomber crews could expect to serve 30 operational missions before being rested and moved to non-operational tours of duty; in the case of the PFF crews, the average was 40, which Robert and Jack had already surpassed. They were overdue a break, but pressed on.

Missions from Bourn - 24 Mar 44 to 27 Jun 44

Robert and Jack flew to the Sqn's new base, Bourn, on 23 March, taking off at 11am and completing more NFT en route. Annex F gives a dissertation from Eddie Vickers on the bombing missions conducted from Bourn between 24 March and 27 June 1944.

They completed 22 operational missions to German targets, of which five were the normal bombing runs, the majority with a standard payload four 500 lbs bombs. The targets were: Koln (once); Oberhausen (1); Osnabruck (2); Venlo aerodrome (1). Seventeen missions are annotated "Marking" with the following as targets: Antwerp (once); Argentan (1); Aulnoye (2); Bientques (1); Boulogne (1); Ghent & Fernier (1); Hasselt (1); Otteisnier (1); Juissy (1); Middel-Straeete (1); Nates (1); St Ghillain (1); St Martin (1); St Valery & Horselines (1); Versailles (1). There was one mission that was not completed on 27 June, the entry being annotated "Ops Otmoor Ordered DMSO A/C U/S⁶⁶".

It is clear from Jack's log book that increasingly his missions were preparing for D-Day.

⁶⁴ ORBs are maintained, reviewed and signed off each month by the Sqn Cdr, just as each aircrew's log book is signed off by the Flt and the Sqn Cdrs. The host station would also maintain its own ORB as would other lodger units.

⁶⁵ BER - Beyond Economic Repair.

⁶⁶ The aircraft was U/S (unserviceable) and DMSO *may* mean Diverted to Major Servicing Organisation; Major in this context meaning one of the RAF's maintenance units that was equipped to undertake deep maintenance and repair.

Outcomes of Operational Missions Over Europe

We have attempted to tabulate here the outcomes of Jack's Operational missions:

Date	Aircraft (Mosquito)	Pilot	Mission	Outcome	Mission Specifics	Flying Time (Night)
18.10.43	DZ 589	Flt Lt Castle	Duisburg (3x500lbs + 1 x 250lb)	DCO	11 Mosquitos; none lost. DZ 441 crashed on take-off, Flt Lts RB Smith OE Cadman unhurt.	3.30
20.10.43	DZ 591	Flt Lt Castle	Knapsack (3x500lbs + 1 x 250lb)	DCO	Bombed power station. 6 Aircraft returned to Knapsack 22.10.22, DZ 591 and Flt Lts Gordon Sweeney and William George Wood FTR.	3.45
03.11.43	DZ 550	Flt Lt Castle	Rheinhausen (4x500lbs)	DCO	Six 105 Sqn aircraft bombed Krupps factory, Flt Lt Bray returning with 2 x 500lb onboard, not released.	3.00
04.11.43	DZ	Flt Lt Castle	Leverkusen (4x500lbs)	DCO	24 Mosquitos attack chemical works. Flt Lt John Gordon and Fg Off Ralph Gamble Hayes in DZ587 KIA, crashing in Road Green Farm, Hempnall, Norwich.	3.25
06.11.43	ML 913	Flt Lt Castle	Bocham (6x500lbs)	DCO	No aircraft lost, but ML 913 crashed 06/07/44 at Schloven.	3.15
09.11.43	DZ550	Flt Lt Castle	Bocham (4x500lbs)	DCO	Bombed blast furnaces. No losses but DZ55 diverts to Wyton returning to Marham next morning.	3.30
15.11.43	ML 896	Flt Lt Castle	Duisburg (6x500lbs)	DCO	Duisburg (secondary target). The 105 Sqn, three faced problems. ML913 (Blessing/Burke) hit by flak. ML919 flipped by bomb below, pilot (Humphrey injured) recovering to Hardwick. ML904 (Hampson/Hammond) shot down, Stalag Luft III. PoWs.	3.00
17.11.43	ML 896	Flt Lt Castle	Duisburg (6x500lbs)	DCO	Target August Thyssen AG Foundry	2.35
18.11.43	DZ 489	Flt Lt Castle	Aachen (4x500lbs)	DCO	Abandon prime target and bombed alternative, Crashed on landing, aircraft damaged BER.	3.00
04.12.43	DZ 429	Flt Lt Castle	Hamborn (4x500lbs)	DCO	Part of 9 mosquito raid; no losses.	3.05
10.12.43	LR 512	Flt Lt Castle	Leverkusen (4x500lbs)	DCO	25 Mosquitos, none lost	2.05
11.12.43	LR 512	Flt Lt Castle	Hamborn (4x500lbs)	DCO	18 Mosquitos, none lost	3.00
13.12.43	ML 921	Flt Lt Castle	Dusseldorf (4x500lbs)	DCO	16 Mosquitos involved without loss.	2.55
20.12.43	ML 914	Flt Lt Castle	Leverkusen (4x500lbs)	DCO	Five Mosquitos.	3.00
22.12.43	ML 922	Flt Lt Castle	Knapsack (4x500lbs)	DCO	Four Mosquitos bombed power stations.	2.40
23.12.43	MM 237	Flt Lt Castle	Aachen (4x500lbs)	DCO	12 Mosquitos tasked. MM237 shot down on 06.03.45	2.30
29.12.43	ML 922	Flt Lt Castle	Dusseldorf (4x500lbs)	DCO	Six Mosquitos tasked.	2.55

Operational Missions Over Europe - Oct to Dec 43

Date	Aircraft (Mosquito)	Pilot	Mission	Outcome	Mission Specifics	Flying Time (Night)
01.01.44	ML 919	Fit Lt Castle	Witten (4x500lbs)	DCO	11 Mosquitos bombed Ruhrstahl AG Steel Works.	2.50
04.01.44	ML 920	Fit Lt Castle	Essen (4x500lbs)	DCO	Two Mosquitos bombed Fried Krupp AG Steel Works.	2.50
14.01.44	ML 921	Fit Lt Castle	Rheinhausen (4x500lbs)	DCO	Nine Mosquitos attacked the Krupp Stahl AG Works. ML921 met by Flak; damaged port engine nacelle and stabbed into the starboard fuselage; RTB safely.	3.10
20.01.44	ML 911	Fit Lt Castle	Dusseldorf (4x500lbs)	DCO	Bombed Borsig AG Ironworks	2.50
23.01.44	ML 911	Fit Lt Castle	Dusseldorf (4x500lbs)	DCO	Bombed Borsig AG Ironworks. One aircraft lost elevator control, and Fit Lt Kenneth Wolstenholme and Plt Off V E Piper crash landed at RAF Manston.	2.55
25.01.44	ML 911	Fit Lt Castle	Aachen (4x500lbs)	DCO	Bombed Nazi HQ	2.45
27.01.44	ML 902	Fit Lt Castle	Aachen (4x500lbs)	DCO	Bombed Nazi HQ	3.00
28.01.44	ML 902	Fit Lt Castle	Gilze Rijen (4x500lbs)	DCO	Bombed airfield	2.15
30.01.44	ML 902	Fit Lt Castle	Elberfeld (4x500lbs)	DCO	No losses.	3.05
02.02.44	ML 911	Fit Lt Castle	Elberfeld (4x500lbs)	DCO	No losses.	2.55
04.02.44	LR 512	Fit Lt Castle	Elberfeld (4x500lbs)	DCO	No losses.	3.05
08.02.44	ML 902	Fit Lt Castle	Elberfeld (4x500lbs)	DCO	Attacked Essen. No losses.	2.45
10.02.44	ML 902	Fit Lt Castle	Elberfeld (4x500lbs)	DCO	No losses.	3.10
11.02.44	ML 902	Fit Lt Castle	Elberfeld (4x500lbs)	DCO	Attacked Essen. No losses.	2.55
12.02.44	ML 902	Fit Lt Castle	Elberfeld (4x500lbs)	DCO	Attacked Koln. No losses.	2.50
19.02.44	ML 902	Fit Lt Castle	Dieren (4x500lbs)	DCO	Bombed airfield. No losses.	2.30
20.02.44	ML 902	Fit Lt Castle	Volkel (4x500lbs)	DCO	Bombed airfield. No losses.	2.28
01.03.44	ML 411	Fit Lt Castle	St Trend (4x500lbs)	DCO	Bombed airfield. No losses.	2.25
04.03.44	MM 237	Fit Lt Castle	Dusseldorf (3x500lbs + 1 TI)	DCO	Castle/Griffiths first TI mission.	2.15
05.03.44	ML 902	Fit Lt Castle	Duisburg (3x500lbs + 1 TI)	DCO	Two 109 + 2 105 Mosquitos making target for 4000lb blockbuster bomb.	2.40
09.03.44	MM237	Fit Lt Castle	Dusseldorf (3x500lbs + 1 TI)	DCO	Eight Mosquitos tasked.	2.40
11.03.44	ML 902	Fit Lt Castle	Munchen Gladbach (3x500lbs + 1 TI)	DCO	47 aircraft raid on six German cities.	2.30
13.03.44	ML 913	Fit Lt Castle	Le Mans (4 x TIs)	DCO	Target Marking. Marshalling yards. 213 Halifaxes and 9 Mosquitos of Nos 4,6 and 8 Gps. One Halifax lost.	2.30
15.03.44	MM 237	Fit Lt Castle	St Trend (3x500lbs + 1 TI)	DCO	Bombed aerodrome as a diversion for Stuttgart raid.	2.30
18.03.44	MM 237	Fit Lt Castle	St Trend (3x500lbs + 1 TI)	DCO	Bombed aerodrome as a diversion for Stuttgart raid; repeat of above.	2.20

Operational Missions Over Europe - Jan to Mar 44

Date	Aircraft (Mosquito)	Pilot	Mission	Outcome	Mission Specifics	Flying Time (Night)
20.03.44	MM 237	Flt Lt Castle	Aachen (4x500lbs)	DCO	Bombed railway system.	2.45
22.03.44	MM 237	Flt Lt Castle	Deelon (4x500lbs)	DCO	20 Mosquitos, three from 105 Sqn, bombed night fighter aerodrome, a diversion for main force on Frankfurt. LR476 (Boxall/Robinson) RTB with one 500lb attached. Boxall KIA.	2.40
23.03.44	MM 237	Flt Lt Castle	Move to Bourn		NFT en route	(0.50) Day
24.03.44	MM 237	Flt Lt Castle	Venlo (4x500lbs)	DCO	Bombed airfield.	2.45
25.03.44	LR 508	Flt Lt Castle	Aulnoye (4xTIs)	DCO	Six + two reserve aircraft Target Marking the Marshalling Yards for 192 aircraft to bomb. Very accurate. No losses.	2.40
30.03.44	ML 921	Flt Lt Castle	Koln (1xTI + 3x500lbs)	DCO	Diversions raid for main force over Nuremberg. Disaster.	2.55
09.04.44	MM 237	Flt Lt Castle	Osnabruck (4x500lbs)	DCO	Five days earlier, MM 237(Caesar-Gordon) hit by flak, holing fuel tank, but returned safely.	3.05
10.04.44	ML 911	Gp Capt 'Hal' Bufton	Ghent & Fernier (4xTIs)	DCO	10 aircraft marked target for 122 Halifaxes of 6 Group.	3.25
20.04.44	ML 973	Flt Lt Caesar-Gordon	Ottignies (4xTIs Red)	DCO	Marking the railway (severely damaged) for 196 aircraft; none lost.	2.45
28.04.44	ML 923	Flt Lt Castle	Aulnoye (4xTIs Red)	DCO	Marking railway yards for 223 aircraft; one Halifax lost.	2.30
29.04.44	ML 974	Flt Lt Castle	Oberhausen (4000lb 'Cookie')	DCO	First time Jack dropped Blockbuster. Eight Mosquitos attacked Ruhrchemie AG Synthetic Oil Plant.	2.40
01.05.44	ML 911	Flt Lt Castle	St Ghislain (4xTIs Red)	DCO	Marking railway yards for 137 aircraft. One Halifax and one Lancaster lost.	2.20
08.05.44	ML 916	Flt Lt Castle	Nantes (4xTIs Red)	DCO	Marking airfield for 93 Lancasters and six Mosquitos of 3 and 8 Gps. Accurate. One Lancaster lost.	3.10
10.05.44	MM 237	Flt Lt Castle	Valery-en-Caux and Morsalines (4xTIs Red)	DCO	Marked seven Coastal Gun Batteries in Pas de Calais area for 414 aircraft. Four batteries hit and one aircraft lost.	2.40
12.05.44	MM 237	Flt Lt Castle	Hasselt (3xTIs Red)	DCO	Marked railway centre for 111 aircraft. Seven Lancasters and four Mosquitos lost.	2.50
24.05.44	MM 237	Flt Lt Castle	Antwerp (3xTIs Green)	DCO	Marking Ford Motor Factory for 44 Lancasters and seven Mosquitos of 5 and 8 Gps. No aircraft lost.	1.55
06.06.44	ML 913	Flt Lt Castle	Argentan (2xTIs Yellow)	DCO	D-DAY. Marking railways, road centres and comms lines for 1065 aircraft. 10 Lancasters and one Halifax lost.	2.55
07.06.44	LR 508	Flt Lt Castle	Juvisy (2xTIs Green)	DCO	Marking railways for 337 aircraft. All targets accurately bombed. 17 Lancasters and 11 Halifaxes lost.	2.15
10.06.44	LR 503	Flt Lt Castle	Rennes (2xTIs Green)	DCO	Marking airfields for 401 aircraft of 1, 4, 6 and 8 Gps. Two Halifaxes lost.	3.00

Operational Missions Over Europe - Mar to Jun 44

Date	Aircraft (Mosquito)	Pilot	Mission	Outcome	Mission Specifics	Flying Time (Night)
10.06.44	ML 996	Flt Lt Castle	Versailles (3xTIs Green)	DCO	Marking railway targets for 432 aircraft. All targets hit. 15 Lancasters and 3 Halifaxes lost.	2.30
15.06.44	ML 913	Flt Lt Castle	Boulogne (4xTIs Red)	DCO	Marking German U & E-boat Dockyards for 297 aircraft of 1, 4, 5, and 8 Gps. Great destruction. One Halifax lost.	2.00 (Day Time)
21.06.44	ML 913	Flt Lt Castle	St Martin (3xTIs Green)	DCO	Marking three V1 sites for 232 aircraft of 3, 6 and 8 Gps. Two raids abandoned (cloud). No aircraft loss.	2.15 (Day Time)
23.06.44	ML 996	Flt Lt Castle	Bientques (4xTIs Green)	DCO	Marking four V1 sites for 412 aircraft of 3, 4, 6 and 8 Gps. All targets hit. Five Lancasters lost.	2.25
25.06.44	ML 913	Flt Lt Castle	Middel Straete (4xTIs Green)	DCO	Marking seven V1 sites for 739 aircraft. 22 Lancasters lost, but successful raids.	1.55

Operational Missions Over Europe - Jun 44

Special Duty Missions

Special Duties cover a multitude of operations. Most interested in UK military history might immediately assume the operations in support of the Special Operations Executive, using Lysander and Anson aircraft to fly out secret agents to landing zones guarded by the French Resistance; there would be many of those operations as D-Day approached. However, we suspect the 'SD' annotations in Jack's flying log were more mundane. That said, they do reveal a few hints regarding Jack's progress and the reputation he was developing on 105 Sqn and within the PFF.

The first such mission was with his Flt Cdr, Sqn Ldr Signal on 9 November 1943 to a military range at Otmoor in Oxfordshire. It was a two hour flight at night in Mosquito DL 548; they returned on one engine. It appears to have been an isolated support operation.



**Gp Capt
Hal Bufton**

Then there was a spate of four SD flights in January and early February. The first was a four hour day time flight with Robert in Mosquito NL 912, landing at Coltishall in Norfolk; this was to be their longest duration flight ever to an unspecified destination/target. The next two followed soon after. They were each two and a half hour, day time flights in separate Mosquitos, again with Robert as pilot, on 30th and 31st January. Then a fourth with Robert on 4 February, lasting two hours, and as with the others no target or destination was specified. There is no explanation for any of these SD flights and they took place amidst a similar number of "standard" bombing missions and *before* the pair were involved in TI missions; specialist TI training perhaps?

The next SD flight on 23 April was special in that the pilot was the Station Commander (Stn Cdr), no less a man than Gp Capt 'Hal' Bufton⁶⁷ a pioneer and founder of Electronic Warfare, who went on to be Aide-de-Camp to HM

⁶⁷ Hal Bufton, when a Flt Lt, was the pilot of the Avro Anson that, under Operation *Headache*, located the German Knickebein radar beams over Spalding. The counter Operation *Aspirin* involved creating a decoy signal that would divert the Luftwaffe bombers, heralding the beginning of the 'cat and mouse' operations that became Electronic Warfare. Knickebein, meaning 'Crooked Leg' was chosen by the Germans, because they thought the British were bending their radar beams. The Anson flight was requested by RV Jones acting on intelligence from Bletchley Park, and approved by Winston Churchill, despite opposition from RAF chiefs.

the Queen. This 'SD' flight followed an NFT with Bufton on 10 April preceding a TI mission to Ghent-Fernier that evening. Admittedly, Robert was unavailable at this time and Jack had flown on one mission and two NFTs with two other pilots. However, OC 105 Sqn is unlikely to have let his CO fly with a navigator that would not give a very good account of himself and the sqn. The timing of these 'SD' flights is also significant.

Another 'SD' flight with Jack as navigator was on 23 May - immediately after Jack had returned from his overdue 10 day break - with OC 105 Sqn, Sqn Ldr Tommy Welch Horton RNZAF, as pilot. This was just two days after Jack had been awarded the DFC and a month before Jack, after 66 operational missions with 105 Sqn and 89 all told, moved to take up the post as Oboe specialist at HQ 8 Group.



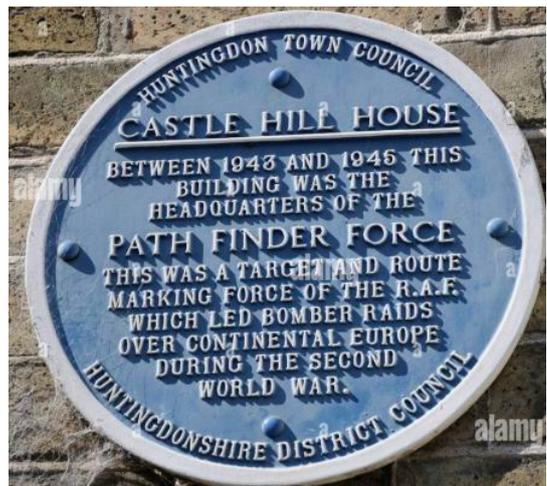
Sqn Ldr Tommy Welch HORTON

It may be gilding the lily to suggest that these special missions were tacit recognition from his senior officers that Jack was special, an able and dedicated PFF navigator. But having received a DFC in May and to receive the bar to the DFC in August

suggests that his sustained achievements at 105 Sqn and for the PFF were exceptional.

HQ 8 (PFF) Group

To date, Jack had been fortunate in that he had successfully completed and survived two years almost continuous operational duty over enemy airspace. At this time, more than 44% aircrew had been killed whilst serving Bomber Command, giving the highest rate of attrition of any Allied unit. Each man was a volunteer, and their average age of death was only 23. At 23, Jack was 'in zone', perhaps tempting fate, and after 89 operational missions over enemy airspace, some may have thought it was time to preserve their valued asset.



Castle Hill House - HQ PFF

Following some leave, Jack was transferred to Castle Hill House in Huntingdonshire, which was the headquarters of Bennett's PFF, where, between 27 July 1944 and 26 January 1945, Jack was involved in controlling the operational and technical aspects of Oboe led operations in the PFF.

During this tour, Jack's contributions will have been pivotal to Oboe led PFF operations within 8 Group. They started with the standard 500 lbs bombing runs that preceded the qualified 'Illuminators' of the sqn, before moving towards a predominance of TI tasks as qualified 'Illuminators'. They concluded with the 'Heavy Oboe' operations against the V1 and V2 rocket sites, whereby the lead 'Oboe' fitted aircraft would release its bombs at the site and the remaining aircraft would follow suit.

In September 1944, at HQ 8 Gp, Jack would have helped plan PFF Oboe operations in support of Operation Market Garden, attacking airfields and flak positions at Hopsten, Leeuwarden, Steenwijk, Rheine and Moerdijk ahead of the ill fated landings at Arnhem and Nijmegen. Through October, he would have helped plan the Oboe TI attacks of 105 and 109 Sqns, as the PFF contribution to the Second Battle of the Ruhr and another 1000 bomber raid, this time with Oboe, on Duisburg. It is possible that from November onwards, Jack was involved in the planning of Oboe led raids of the RAF's growing Light Night Striking Force (LNSF).

Having been commissioned and apparently 'headhunted' by the PFF whilst preparing for a tour as a qualified navigator instructor, Jack had adapted quickly to his rapidly evolving role in 105 Sqn, receiving his PFF Badge shortly after his 10th mission in December 1943, "qualifying" as an 'Illuminator' in March 1944, winning the DFC in May and receiving the Bar to his DFC in August shortly after he was posted to HQ 8 Gp as the Group's "Mr Oboe". By any standards, Jack had achieved much in 9 short months at the height of the strategic air offensive and the onset of 2TAF operations; the DFC *and* Bar, for a navigator, inside 6 months is impressive by any standard. His 'oppo', Robert Castle also received a DFC and Bar, but it is unclear whether they were awarded at the same time as Jack's. We presume both were awarded for a sustained period of precision bombing.



The PFF Badge, DFC Ribbon and Bar (Rosette), and the DFC Medal and Bar.

Chapter 6 - Denouement

[Research courtesy of EG Vickers; RAF insight, IBM Steward.]

VE In Sight - the Implications to RAF Operations

Since Harris had taken command of the RAF's Bomber Command in February 1942, he had been able to sustain a strategic air offensive in Europe as a, perhaps *the*, top RAF priority, but at a heavy cost. Throughout his strategic air offensive, Bomber Command crews had suffered an extremely high casualty rate; there was little prospect of surviving a tour of 30 operations and by 1943, only one in six expected to survive their first tour and one in forty would survive their second tour. Jack had survived, not without incident - throughout a massive, sustained contribution between May 1942 and July 1944 to the strategic air offensive.

By the end of January 1945, however, the war in Europe was coming to an end with VE Day just over three months away. The tide had turned and the RAF's priority had shifted from strategic to tactical air operations. As part of the Allied Expeditionary Air Force (AEAF) under the command of ACM Sir Trafford Leigh-Mallory, the RAF's 2TAF and its tactical operations were the RAF's first priority. Despite fierce resistance from other air chiefs, notably Tedder and Harris, Leigh-Mallory had lobbied for a unified command of allied air forces and had finally got his way.

Meantime, Harris persisted with his belief and the air doctrine of the 20s and 30s that a strategic air offensive alone could achieve victory. This was no longer the perceived view of Churchill and the Supreme Allied Commander, Eisenhower. Victory was assured with the Western and Eastern fronts and it was merely a matter of time. Bomber Command was in a sense out of political and military favour; the momentum for Harris had been lost.

For Jack and other seasoned members in Bomber Command, this was a blessing in disguise. Jack was not to know it, but the well earned 'rest' he was about to be granted, recharging his batteries as a navigator instructor, was to be his 'swan song' as a combatant. We have no doubt that, had the war not ended in 1945, Jack would have been promoted to Sqn Ldr and returned to PFF operations as a flight commander⁶⁸.

Instructor Duties

4 Observer Advanced Flying Unit (4 (O) AFU), West Freugh

Starting a stint on instructor duties, Jack arrived at the 4 (O) AFU on 16 February 1945.

During the four months he was at West Freugh, he only flew six times acting as Screen Navigator in the Avro Anson and the first of these flights had to be aborted after 10 minutes due to the starboard engine oil pressure being low. The remainder of the time was devoted to instruction on navigation in the class room.

The Chief Navigational Instructor was Sqn Ldr Bush and the CO Wg Cdr Peters; other pilots on the Unit were Flt Sgt Cumming, Fg Off Needham, Fg Off Wilson and Plt Off Whiteley.

It is not clear why Jack was 'short-toured' at West Freugh to take up a similar post at 10 Observer Advanced Flying Unit (10 (O) AFU) in Dumfries, or why he flew only six times. The fact is that the throughput of trainees generally was falling as VE Day approached.

⁶⁸ Unlike Fighter Command where sqns were commanded by Sqn Ldrs and flights by Flt Lts, in Bomber Command sqns were commanded by Wg Cdrs and flights by Sqn Ldrs.

10 Observer Advanced Flying Unit (10 (O) AFU)

That said, Jack was posted to the 10 (O) AFU at RAF Dumfries on 25 June 1945 along with some of the other staff, suggesting that he was part of a reorganisation of instructor resources. The one flight Jack went on as Navigator whilst at Dumfries was with Wg Cdr Peters as Pilot. The Unit transferred to RAF Chipping Warden on 10 July 1945 - more reorganisation?

During the next three weeks, Jack navigated for three Anson flights, two with Pilot Fg Off Wilson and one with Flt Lt Borowiak.

On the 11 Sept 1945, Jack attended the 100 PDC (Personnel Dispersal Centre) at RAF Uxbridge for a Class B Release from the service. This was only granted to personnel who had an important contribution to make to the post-war recovery of the country, in Jack's case as a member of the teaching profession; even when leaving the RAF, it seems, he received special recognition. His release date was 11 Sept 1945 and the last day of service was 2 Oct 1945.

Post War

On leaving, Jack attended St Peters Hall Oxford and, whilst there, married Mary Gertrude Shrewsbury (Somerville College) at the end of 1947.

On graduating from Oxford, Jack's first teaching position was at Stowe School in Buckinghamshire.

Having logged nearly 900 hours of flying, 50/50 day and night, it is not surprising that he kept his interest in flying. There is one particular entry in his Flight Log book that shows just how much he maintained his interest in flying for, on 15 June 1947, he flew in a Percival Proctor G-ACZB on a 15 minute return flight from Kidlington to Oxford and back. He is also known to have flown as a passenger about this time in a Percival Prentice and Douglas Dakota, but these flights are not recorded specifically in his log book.



Percival Proctor



Percival Prentice



Douglas Dakota

On 24 Feb 1949, Jack was commissioned as a Fg Off in the Training Branch of the RAFVR - the RAFVR (T). From 25 February 1954, he was granted four extensions of service, each lasting four years that kept him in service until he died in 1972.



Initially, he commanded 2205 Sqn ATC and then, on 8 Aug 1950, Stowe School CCF. On moving up north to teach at Liverpool College, he maintained his involvement in the associated CCF. On 1 July 1959, he was authorised to assume the rank of Flt Lt and achieved the acting rank of Wing Commander in later years. In 1950, he attended a short CO's course at RAF Cranwell, making him a cranwellian albeit with a small 'c'. His 'Movements Record' also shows he attended campus and field days at Hullavington and Buckingham, and returned to RAF Cranwell for two weeks in 1957.

He attended many summer camps in the years 1949-1972 and hearsay is at that he was not shy in accepting "lifts" in various aircraft and surely the one that could not be surpassed was the flight in a Mosquito flying at low level. They say Jack had a smile on his face for days afterwards.

There is no doubt that Jack had a distinguished career in the RAF during the war years, making an effective contribution with the elite PFF. Though he seldom if ever mentioned his exploits, his uniform conveyed something of his achievements. These had not gone unrecognised with the award of the DFC and Bar, his entitlement to wear the 1939-45 and Air Crew Europe Stars and the War Medal. He even received a bar to the Air Crew Europe Star for his operations over enemy territory in Europe, the medal being won for his services on 10 Sqn and the Bar (i.e. rosette) for his operations with 105 Sqn. He was awarded the Cadets Medal for long and efficient service as a Commissioned Officer for the CCF. He was entitled to, but did not wear the Defence Medal.



The Brevets, Medals and Badges that Jack was entitled to wear in recognition of his service

Epilogue

This tribute to Jack 'Butch' Griffiths was prompted by an article on The Lerpoolians website, commemorating the 50th anniversary of his passing. That article by Jeremy Clitherow, a Flight Sergeant in the CCF, evoked memories of a man who gave unstinting service for the school, a man of character who would keep his pupils on their toes as well as entertained. We repeat here Jeremy's personal memory which resonated with so many Lerpoolians:

"I fondly remember - his characteristic 'snort', his humour, his unbelievable memory for four figure logarithms, his dress sense, his love of chemistry calculations - "get out your Gibbs (the notorious book of calculations) and on page X, calculation 4, read it out to me, Boy" and the speed with which he would work through the calculation on the wallboard.....his camaraderie with his fellow masters, Tracy Spencer, Hodge, Blog, Frank Swallow, Connie Parton, Johnnie Jeffs, Nobby Green and Walter Clarke, amongst others.....the transfer from the "huts" to the new science building, A level Chemistry and beyond..... the RAF field days, RAF camps, beating the army section in Skill at Arms competitions by

teams of cadets stripping and re-assembling a Bren Gun - in the dark - gaining your stripes and progression through the ranks (to Flt Sgt in my case) under his guidance and personal care.”

Those final words from Jeremy - guidance and personal care - are so apt. For a man who gave the appearance as being “gruff”, hard as nails”, even “fierce”, he was utterly dedicated to getting the best out of and for each pupil. He was a housemaster, and some. He was involved in just about every aspect of school life, teaching, supervising sports and events, running the debating society, leading the CCF. The tributes from Lerpoolians came pouring in, sharing their respect and personal memories of a remarkable character, who always had their best interests at heart.



In the common room, he was clearly much respected and it was fitting that a colleague and doubtless dear friend, TA ‘TAP’ Pickard, was moved to pen an obituary in the College magazine. We reproduce it verbatim here as a final tribute to a man who was held in the highest esteem, but whose contribution in the service of his country was generally unknown; lest we forget:



Jack Griffiths centre of front row

“Jack Griffiths, who died on 12th September 1972, joined the staff of Liverpool College in 1950 as a senior chemistry master, from Stowe School and after a distinguished wartime career in the RAF, where he had won the DFC and Bar as a bomber command navigator and pathfinder. After a period as house tutor to Geoffrey Gill in Selwyn’s, he became housemaster of Howard’s House in 1957. He started the RAF Section of the CCF on his arrival and became OC CCF. For ten years, he ran the Debating Society. A rugby enthusiast, he became one of the 1st XV coaches as well as earning a wider reputation on the Liverpool referees’ panel.

So it might run, a bare recital of positions held. But what Jack meant in the life of the college is an altogether different story. He was at the heart and centre of everything that went on. For twenty years, he ran the chemistry department and for much of that time, acted as overall head of science teaching throughout the school.

He saw his department expand from its improvised and inadequate quarters in the outhouses behind Gladstone (Besford Grange to the older generation) into the present science block, in whose design he took a prominent share. He thought nothing of teaching forty boys in a class; he insisted on filling his timetable with 31 out of a possible 34 periods. He was in the forefront of every discussion about the curriculum from the time he came here down to a few weeks before his death. As if this were not enough by way of academic work, he took an immense burden of correcting as External Examiner, for O-level chemistry on both the Oxford Local and Cambridge Local Boards, and as a Chief Examiner for A-level chemistry on the Northern Ireland Board. Only last term, he flew to Belfast one day, flew on to London the next for a full day of board meetings there, and returned on the midnight train for a full day's work at the college - this barely three months before he died. To complete the tally, he taught two nights a week at night school for the whole of his career - until his last year when, as a concession to his doctor's insistence, he reduced it to one night.



As a leading figure, for many years the leading figure, in the CCF, he never wavered in his belief that for town-bred boys from comfortable homes the rigours of outdoor military training, especially the annual camps, were an indispensable part of education, and that it was through the CCF that many boys as NCOs first learned something about the problems of exercising authority. As with his teaching so with the CCF, ever a frontline general he was always present and active, taking a leading and personal part in every CCF occasion and in every camp, even this year when hardly able to stand without pain. On the games field in all weathers, his squat figure was a familiar, ever-present sight; he was happiest of all when refereeing a rugby match, or if that were denied him criticising the refereeing of others from the



Jack driving the cricket square roller

touchline. Who will ever forget the white-coated figure on the 1st XI square turning away in disgust at nine out of ten LBW appeals? Of the vision of Jack at the athletics sports, clutching stop-watches in both hands, swinging round the head in the air as the starting pistol fired, and arguing manfully in favour of borderline standards by

Howard's boys. For he was above all the devoted and indefatigable housemaster, who knew his boys - and his parents - through and through. Fierce though he may have seemed to miscreants - and his "grillings" of offenders obstinately persisting in a pose of innocence were a byword - he was in truth a soft-hearted man and a generous critic, always looking of the best in a boy and anxious to find for every boy some outlet, some activity in which he could do well. But woe betide the feeble or half-hearted.

But how to put on a page the quality of so vivid and protean a personality? Jack became a legend in a lifetime. His memory - feats of recollection bringing back to mind the smallest details of the career of some long-departed old boy; or that fantastic capacity for remembering figures ("Wasn't that your old car, JKB 616, going down Queens Drive this morning, Tom?") A blend of determination, conviction, humour and humility - of course, he could be difficult and obstinate, but always generous, ready enough to defer in practice to the convictions of those he respected however much he might disguise it; far more self-critical, and indeed unsure of himself, than most could guess. Above all, an immensely human and loveable companion, with a marvellous capacity for making friends, and a ready wit and keen sense of the ridiculous which kept everyone around him from becoming too solemn or pompous. What endless fun we had with him in the common-room! At Brucklay in their flat, and latterly at Ty Isaf, Jack and Mary made a home that so many of us have visited, always to be received with magnificent hospitality - a real family house, full of young people and animals, as brimful of vitality and happy confusion as any parents would wish.

No one who has been a boy at Liverpool College, or member of staff serving in any capacity whatsoever in any part of the school these past twenty years, could ever overlook Jack when he was in our midst. None of us will ever forget him, and many for a long time to come will be inspired to better things by his example of dedication and courage, not least during his last painful months. A man for all seasons, how we shall miss him."



Annex A - Movements

[Research courtesy of EG Vickers]

This Annex details the different RAF stations to which Jack Griffiths was posted during his wartime career.

2 Recruiting Centre, RAF Cardington



Former airship sheds at Cardington during 2013



Location within Bedfordshire

RAF Cardington opened in 1936 and was a specialist training base for balloon operators, the first batch of recruits undergoing basic training on entry into the RAF arriving in 1937. Basic training of new recruits continued until 1953. Training of balloon operators was stepped up in 1938 to ensure the full manning of barrage balloon units around the coasts in the event of war. Following the conquest of their homelands, many Polish and Dutch personnel were trained in balloon handling. The balloon training unit closed in November 1943, by which time it had trained over five thousand RAF balloon operators and nearly the same number of operators from the Women's Royal Air Force as well as 12,000 other balloon personnel and drivers of both sexes. At the end of May 1945, a Personnel Dispatch Centre was set up to process personnel being demobilised.

7 Recruits Centre, RAF Morecambe

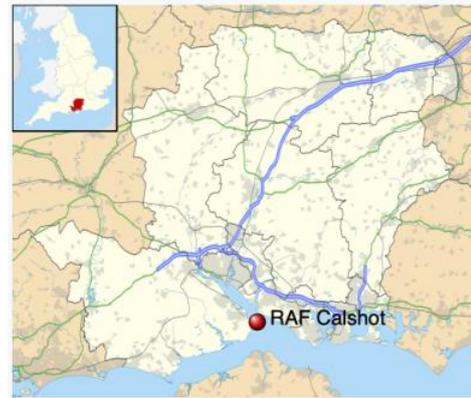
Morecambe had a number of different roles within the RAF, a basic training unit, including WAAF's (about 80% of whom went through Morecambe), driving school, training centre for engine fitters and airframe fitters, transit camp and hospital. There was a non-operational airfield with three hangers where airframe fitters learned their trade on withdrawn Whitley bombers, whilst engine fitters worked in the numerous commercial garages commandeered, including the council bus garage. After basic training recruits would move on, unless enrolled on the driving courses (for WAAF's) or were trainee fitters. The hospital was largely used by RAF personnel stationed in Morecambe or civilian workers at the camp. Also within the borough was Heysham where high octane petrol was produced to boost the operation parameters of the Spitfire after the engines had been modified to use the 100 octane fuel produced there instead of the normal 80 octane. Also within the borough was an army officers training establishment, and a port with its naval presence.



RAF Calshot



Aerial view, late 1920s.



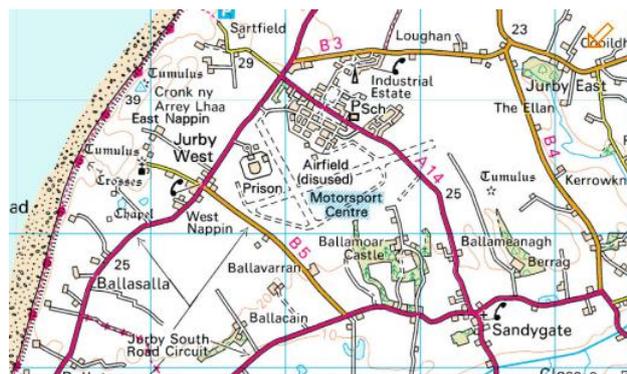
RAF Calshot was initially a seaplane and flying boat station, and latterly a RAF marine craft maintenance and training unit, located at the end of Calshot Spit in Southampton Water, Hampshire.

It was the main seaplane/flying boat development and training unit in the UK, with the landing area sheltered by the mainland, to the west, north and east, and the Isle of Wight, a few miles away to the south on the other side of the Solent, where seaplanes and flying boats were mass-produced by Saunders-Roe. It closed in 1961. Much of the former base has been preserved, with most of the site now being occupied by the RNLI.

1 Receiving Wing & 5 Initial Training Wing, Babbacombe

1 Receiving Wing (1RW) was formed on 20 November 1940 at Norcliffe Hotel, Babbacombe, Torquay and was re-designated 1 Initial Training Wing (ITW) on 14 June 1941.

5 Air Observer School, Jurby Isle of Man



RAF Jurby is a former RAF station built in the north west of the Isle of Man. It was opened in 1939 on 400 acres (1.6 km²) of land acquired by the Air Ministry in 1937, under the control of No. 29 Group, RAF. During the Second World War, the station was used for training as 5 Armament Training Station, 5 Air Observer School, 5 Bombing & Gunnery School and 5 Air Navigation & Bombing School. In addition RAF Jurby also played host to a variety of operational sqns, including 258, 302, 307, 312 and 457 Sqns.

19 Operational Training Unit (19 OTU), RAF Kinloss



RAF Kinloss opened on 1 April 1939 as part of No. 21 Group, with Group Captain Arthur Peck as its first station commander. Initially, many personnel who were posted to Kinloss were previously unaware of the station and were surprised at how far north it was located.

Kinloss was transferred to No. 4 Group on 27 May 1940, at the time part of Bomber Command. At the same time, 19 OTU was formed and tasked with training aircrews on heavy-bomber aircraft before deployment onto operational sqns. The unit was initially equipped with forty-eight Whitleys and sixteen Avro Ansons and the first training courses began in June 1940.

By 1941, Kinloss was overcrowded with aircraft belonging to No. 45 MU and No. 19 OTU; therefore a satellite station was constructed at Balnageith, to the south west of the nearby town of Forres. The satellite, known as RAF Forres, opened on 25 January 1941, with 'D' flight of No. 19 OTU and their Whitleys moving in on 27 April 1941 and 'C' flight following on 13 May 1941. The northerly latitude of the station later earned it the nickname within the RAF of "Ice Station Kilo", after the 1968 espionage film *Ice Station Zebra*.

10 Sqn, RAF Marston Moor

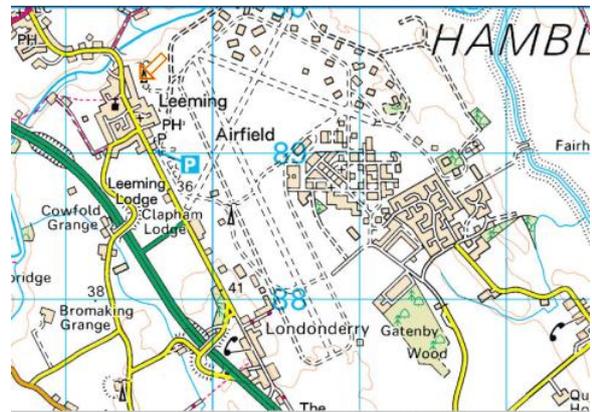


RAF Marston Moor was a RAF airfield at Tockwith, North Yorkshire, during WWII. It was originally called RAF Tockwith, but confusion with RAF Topcliffe led to the name change. RAF Marston Moor was opened on 11 November 1941, the airfield and RAF Church Fenton being the closest airfields to West Yorkshire that would act as a defence should Leeds be attacked. As it happens Leeds was seldom bombed.

In 1943, Group Captain Leonard Cheshire VC was made the station commander. He requested to be transferred to the command of 617 Sqn in November 1943, a vacancy created by the loss of George Holden in July of that year. The move required him to voluntarily step down in rank from group captain to wing commander, which he did.

Marston Moor was also in control of RAF Rufforth and RAF Riccall.

10 Sqn, RAF Leeming



RAF Leeming is a station located near Leeming, North Yorkshire. It was opened in 1940 and was jointly used by the RAF and the Royal Canadian Air Force (RCAF). Between 1950 and 1991, it operated mostly as a training base with Quick Reaction Force (QRF) Panavia Tornado F3 fighters based there in the latter stages of the Cold War and into the early 21st century. Since 2006, it has become the home of the deployable RAF communications cadre (90 Signals Unit RAF) and the home of 135 Expeditionary Air Wing.

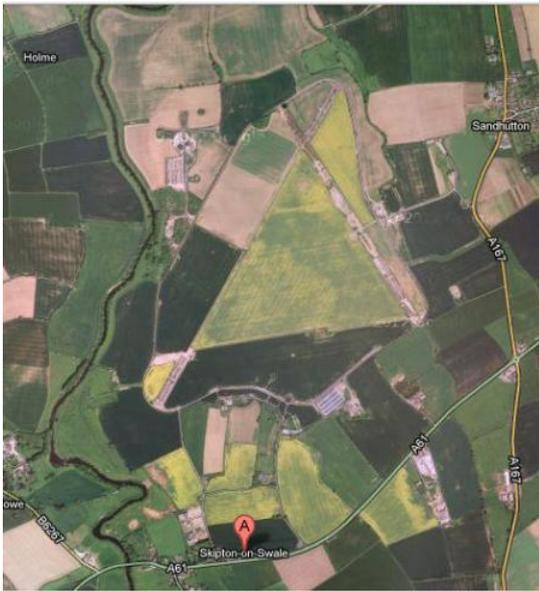
10 Sqn, RAF Middleton St George



RAF Middleton St George was a RAF and RCAF Bomber Command station during WWII. It was located in County Durham, five miles east of Darlington. The station's motto was *Shield and Deter*. Like many similar airfields, RAF Middleton St George was commissioned in 1938 in anticipation of WWII and opened in 1941 under the auspices of Bomber Command. Contrary to popular belief the airfield was never called RAF Goosepool, Goosepool being the name of the farm which made way for the airfield, with the name sticking amongst the local population.

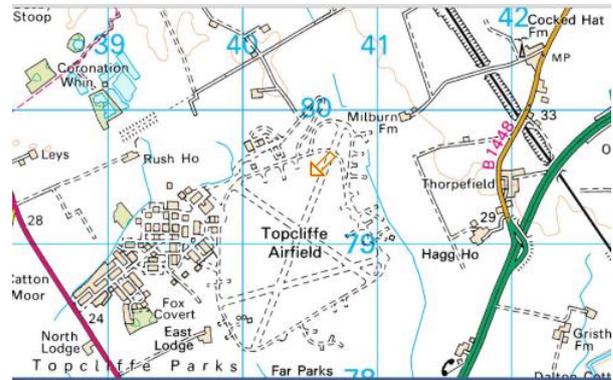
The aerodrome remains active as Teesside International Airport.

10 Sqn, RAF Skipton-On-Swale



RAF Skipton-on-Swale was operated by Bomber Command during WWII. The station was located at Skipton-on-Swale 4 miles (6.4 km) west of Thirsk (near the present-day junction of the A61 and A167), North Yorkshire. The village of Sandhutton is located just to the east. RAF Skipton-on-Swale was a sub-station of RAF Leeming.

10 Sqn, RAF Topcliffe



RAF Topcliffe is in North Yorkshire and was established as a Bomber Command station in 1940 and the home to 77 Sqn and 102 Sqn, both flying the Armstrong Whitworth Whitley heavy bomber. There was a decoy site at Raskelf. 419 Sqn and 424 Sqn of the RCAF moved in flying Vickers Wellington bombers and later, the Handley Page Halifax III. On 1 January 1943, the station was transferred to 6 Group RCAF and became a training station. The station, along with sub-stations at Wombledon, Dalton and Dishforth was designated as 61 (Training) Base in late 1943. The British Army took over a large part of the site in 1974 and the airfield became an enclave within Alanbrooke Barracks. The last remaining RAF unit is 645 Volunteer Gliding Sqn, which operates the Grob Viking T.1 glider.

10 Sqn, RAF Melbourne



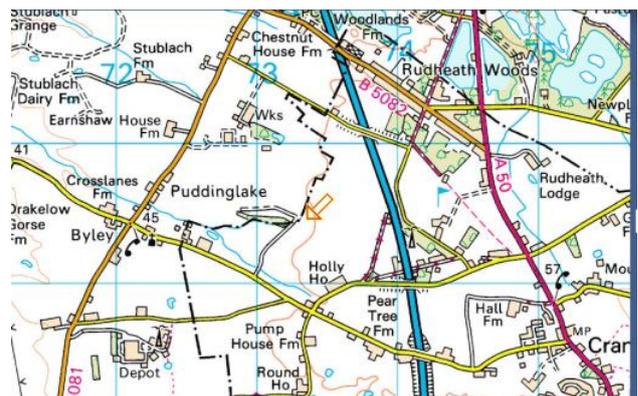
RAF Melbourne is a former RAF station used during the WWII, located 5 miles (8 km) to the south-west of Pocklington, Yorkshire. The nearest village is Seaton Ross. East Common just outside the village of Seaton Ross was requisitioned for use as a grass airfield in November 1940. In late 1940, the airfield was used by Armstrong Whitworth Whitleys of 10 Sqn as a relief landing ground for RAF Leeming. The airfield soon closed for re-development as a standard Bomber Command airfield with three concrete runways and three hangars.

The first user of the re-built airfield was again 10 Sqn, but by this time operating the Handley Page Halifax four-engined heavy bomber; little time was wasted before the aircraft were used on operational sorties from Melbourne. The sqn continued with operation until March 1945 and lost 109 aircraft on operations.

Melbourne was one of seventeen sites equipped with the FIDO fog dispersant system. This made the airfield a popular diversion for other sqns returning from operations to Yorkshire in extreme bad weather conditions.

In May 1945, the airfield was transferred to Transport Command and 575 Sqn moved in with the Douglas Dakota. The sqn only stayed for a few months operating transport flights to and from continental Europe. With the departure of the Dakota, a number of specialised Flights used the airfield for six months, but, by the middle of 1946, the airfield was no longer used for flying.

2 School of Advanced Navigation, RAF Cranage



The site at Cranage was chosen for use as a training station and aircraft maintenance unit in August 1939, just before war broke out. Originally just a grass airfield, three runways were later built from American metal plank. The airfield unusually had eight blister hangars for maintenance use.

The first flying unit was 2 School of Air Navigation (SoAN) RAF, which was formed on 21 October 1940. It operated the twin-engined Avro Anson for training navigators. In 1942, the unit was renamed the Central Navigation School (CNS) and the strength was increased to 58 Ansons; they were joined two years later by a number of Vickers Wellingtons in the same role.

As well as the training role, the airfield also housed an operational sqn from December 1940 with the formation of 96 Sqn which was equipped with Hawker Hurricanes. This unit operated in the night air-defence role, mainly in the protection of the industrial and port areas of Liverpool.

A Vickers-Armstrongs shadow factory assembling Wellingtons, was situated at Byley but close to the airfield. The completed aircraft would be towed from the factory to the airfield for their first flight and onward delivery. In July 1942, 1531 Flight was formed as a Beam Approach Training Flight using the Airspeed Oxford. Aircrew were taught the techniques of the-then new airfield approach aid. A United States Army Air Forces liaison flight, operating Sentinels, also worked from the site in 1944.

The only flying unit on the airfield after the war was 190 Gliding School, which was formed in May 1945 and operated from the site for two years. With their departure, flying ceased at Cranage. The airfield was used for storage and maintenance until it closed in 1958.

1663 Heavy Conversion Unit (HCU) - RAF Rufforth



RAF Rufforth was located near North Yorkshire, and officially opened at the start of November 1942 with 158 Sqn becoming the first sqn to arrive, from RAF East Moor with Halifax bombers. The sqn was initially used on long-range bombing missions to Italy (Genoa being a frequent target), which led to a high attrition rate due to aircraft often running out of fuel and having to land elsewhere or crashing. 158 Sqn moved to RAF Lissett in February 1943.

1663 HCU was stood up at Rufforth in early March 1943, operating ex-operational Halifaxes, which required considerable maintenance from the ground crews. Later variants of Halifaxes were added to the unit's complement, and by 1944, it was operating 16 Lancaster aircraft too. Later, in the same year, with other aircraft swelling the inventory (including some fighter aircraft), the base was transferred from 4 Gp to 7 Gp, which was part of training command.

With the disbandment of 1663 HCU following the end of the war in Europe, lighter training aircraft moved to Rufforth in the form of 23 Gliding School and 64 Gp Communications Flight. MoD completely disposed of the station in 1981, and it now is used for civilian light aircraft and glider flying.

1665 Heavy Conversion Unit (HCU) - RAF Waterbeach



The airfield was built in 1940 on the northern edge of Waterbeach village, Cambridgeshire, and operated under the control of Bomber Command, hosting 99 Sqn (1941-1942), 26 Conversion Flt (1941-1942), 1651 Conversion Unit (1942-1943), 214 Sqn Conversion Flt (1942), 1665 MTU (1943), 1678 Conversion Unit (1943) and 514 Sqn (1943-1945). After the war, the control of the station was passed to Training Command and later Fighter Command before being transferred to the Royal Engineers in 1966. The original control tower and many RAF buildings, including several hangars, are still present.

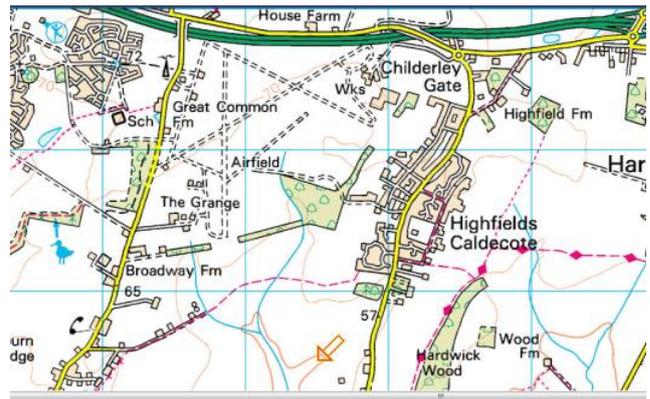
1665 MTU and 105 Sqn - RAF Marham



In 1943, it was clear that the PFF needed its own dedicated training unit and 1665 HCU was renamed 1665 Mosquito Training Unit and moved to Marham in Norfolk, East Anglia. The station opened in August 1916, close to the former Royal Naval Air Station Narborough, later RAF Narborough, and was originally a military night landing ground on an 80-acre (320,000 m²) site within the boundary of the present day RAF Marham. De Havilland Mosquitos from 105 Sqn arrived in 1941 and Marham became part of the Pathfinder force, when it formed in August 1942, where they also tested and proved the Oboe precision bombing aid.

Marham still operates today and is the current home of the legendary 617 Dambusters Sqn, operating the F-35B Lightning since 2018.

105 Sqn - RAF Bourn



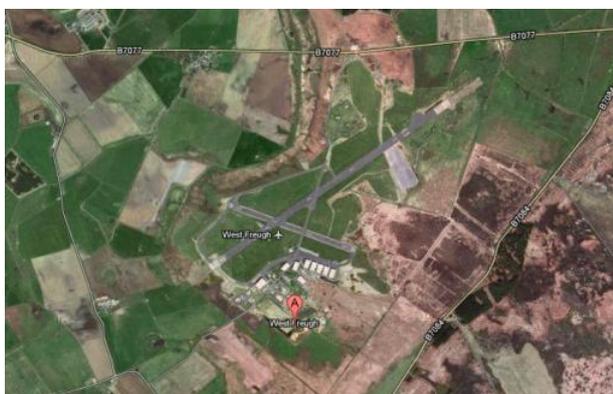
RAF Bourn was located 2 miles (3.2 km) north of Bourn, Cambridgeshire and 6.9 miles (11.1 km) west of Cambridge itself. The airfield was constructed for Bomber Command in 1940 as a satellite airfield for nearby RAF Oakington. It was used by Vickers Wellingtons of 101 Sqn for training purposes from 23 July 1941, and from October of that year 101 and 7 Sqns used the airfield when Oakington became unavailable.

97 Sqn's Avro Lancasters were replaced by the Mosquito IXs of 105 Sqn in March 1944. These Oboe-equipped aircraft were able to identify targets with great precision and then mark them accurately. In December 1944, 162 Sqn was formed at Bourn with Canadian-built Mosquito XXs and XXVs, which flew almost nightly to Berlin, target-marking for the Light Night Strike Force. The two sqns operated together from Bourn for much of the rest of the war.

From 1941 to 1945, damaged Short Stirlings were repaired and test-flown from Bourn. These were transported to the airfield from the Sebro factory near Madingley, which later continued its work with RAF and United States Army Air Forces (USAAF), Consolidated B-24 Liberators. The Bourn and Madingley units together employed up to 4,500 personnel.

The airfield was passed on to RAF Maintenance Command in 1947. By 1948, the station was closed and the last sections were sold off for agricultural use in 1961.

4 Observer Advanced Flying Unit (4 (O) AFU) - RAF West Freugh



West Freugh is located in Wigtownshire, 5 miles (8 km) south east of Stranraer, Dumfries and Galloway, Scotland. It has always been an armaments training school, either for handling or deployment of ordnance. It was opened in 1937 and, during WWII, expanded to include training facilities for observers, navigators, and bomb aimers; it served as a base for the Bombing Trials Unit.

The site is now known as MOD West Freugh and is operated by defence contractor QinetiQ, on behalf of the Ministry of Defence.

10 (O) AFU - RAF Dumfries



The airfield at Dumfries opened on 17 June 1940 and was sold in 1960 to a private firm. It is now used as the Dumfries and Galloway Aviation Museum.

18 Maintenance Unit (MU) was allotted to 41 Gp and became the lodger unit on 17 June 1940. No aircraft were flown in until the end of June, when the obstructions placed on the airfield to prevent enemy aircraft from landing were removed. 18 MU reverted to a tenant unit on 13 July 1940 and 10 Bombing and Gunnery School RAF (10 B&GS) of 25 Gp, RAF Flying Training Command, relocated there from RAF Warmwell, Dorset. 10 B&GS trained bomb-aimers and gunners in Handley Page H.P.54 Harrows and Fairey Battles before further training at OTUs.

The airfield consisted of a grass runway, upgraded to hard surfaces due to the demands of operational training. Whilst this work was being undertaken, 10 B&GS utilised the satellite landing ground at RAF Winterseugh, Annan, Dumfries and Galloway.

Due to the numbers of aircraft, 18 MU was forced to disperse the aircraft to satellite landing grounds at RAF Low Eldrig, near Stranraer, RAF Lennoxlove, near Haddington, RAF Wath Head in Cumbria and also RAF Hornby Hall, Cumbria. 11 Sub-Ferry Flight was posted to the airfield between April and July 1940.

10 B&GS was re-designated 10 Air Observers School (10 AOS) RAF in September 1940 and began training navigators in Armstrong Whitworth Whitley and Blackburn Botha aircraft. In April 1940, 10 AOS was renamed 10 (O) AFU and was re-equipped with Avro Ansons.

Over 400 courses had been conducted during WWII at RAF Dumfries. 10 (O) AFU was again renamed 10 Air Navigation School (10 ANS) in August 1945 and disbanded in September 1945. 18 MU closed in 1957 having prepared and dispatched almost 5,000 aircraft to units and after the war stored aircraft awaiting disposal.

The airfield was a training station for national service recruits to the RAF Regiment between 1947 and 1957. The airfield was then placed under care and maintenance until the site was sold to a private company in 1960.

10 (O) AFU - RAF Chipping Warden



RAF Chipping Warden was located 6 miles (10 km) north-east of Banbury, Oxfordshire, near the village of Chipping Warden, Northamptonshire,

Throughout its operational history, the base was used by Bomber Command. Between July 1941 and June 1945, it was used by 12 OTU, based at RAF Benson and part of 1 Gp, operating Avro Anson and Vickers Wellington bombers from the airfield.

Between August 1945 and January 1946, the airfield was home to 10 ANS. Until December 1946, the base was used as a storage unit by 6 MU at Brize Norton, and storing Airspeed Horsa gliders awaiting disposal. RAF Chipping Warden then closed until September 1952, when it became home to a Relief Landing Ground for 9 Advanced Flying Training School (September 1952 - August 1953), which became 9 Flying Training School (August - October 1953) until the airfield closed for a second time.

Annex B - 1000 Bomber Raids

[Research courtesy of EG Vickers]

The verbatim account from Eddie Vicker's extensive research reads as follows:

Raid 1 - Koln

“The first of the "1000" Bomber Raids was to Cologne on 30 June 1942. Wg Cdr {Don} Bennett was now back from Sweden but, as he was still being debriefed, he could only see the Squadron off and meet them on their return. Halifax W1040 (lost subsequently on 22 July 1942 at Zijderweld) was crewed by Jack as Navigator with Pilot Fg Off David Dudley Plaister Joyce RCAF who was from Buenos Aires Argentina. 1,047 aircraft were dispatched, this number being made up as follows:

1 Group - 156 Wellingtons

3 Group - 134 Wellingtons, 88 Stirlings = 222 aircraft

4 Group - 131 Halifaxes, 9 Wellingtons, 7 Whitleys = 147 aircraft

5 Group - 73 Lancasters, 46 Manchesters, 34 Hampdens = 153 aircraft

91 (OTU) Group - 236 Wellingtons, 21 Whitleys = 257 aircraft

92 (OTU) Group - 63 Wellingtons, 45 Hampdens = 108 aircraft

Flying Training Command - 4 Wellingtons.

Aircraft totals: 602 Wellingtons, 131 Halifaxes, 88 Stirlings, 79 Hampdens, 73 Lancasters, 46 Manchesters, 28 Whitleys = 1,047 aircraft.

The exact number of aircraft claiming to have bombed Cologne is in doubt; the Official History says 898 aircraft bombed but Bomber Command's Night Bombing Sheets indicate that 868 aircraft bombed the main target with 15 aircraft bombing other targets. The total tonnage of bombs was 1,455, two-thirds of this tonnage being incendiaries. German records show that 2,500 separate fires were started, of which the local fire brigade classed 1,700 as large. Property damage in the raid totalled 3,330 buildings destroyed, 2,090 seriously damaged and 7,420 lightly damaged. More than 90 per cent of this damage was caused by fire rather than high-explosive bombs. Among the above total of 12,840 buildings were 2,560 industrial and commercial buildings, though many of these were small ones. However, 36 large firms suffered complete loss of production, 70 suffered 50-80 per cent loss and 222 up to 50 per cent. The estimates of casualties in Cologne are, unusually, quite precise. Figures quoted for deaths vary only between 469 and 486. The 469 figure comprises 411 civilians and 58 military casualties, mostly members of Flak units. 5,027 people were listed as injured and 45,132 as bombed out. The RAF lost 41 aircraft which were: 29 Wellingtons, 4 Manchesters, 3 Halifaxes, 2 Stirlings, 1 Hampden, 1 Lancaster and 1 Whitley, 3.9 per cent of the bombing force. Bomber Command later estimated that 22 aircraft were lost over or near Cologne - 16 shot down by Flak, 4 by night fighters and 2 in a collision; most of the other losses were due to night-fighter action in the radar boxes between the coast and Cologne.

On this Cologne raid, Jack's record in his logbook merely states that the bombs, 3x1000Lb + 12 cans of incendiaries, fell off 20 miles from the target. Other accounts for the raid give more information. Sqn Ldr Ennis, with whom Jack had previously flown, was picked up by searchlights at 14,000 ft approaching Cologne and was held for the next 25 minutes. The Tail Gunner, Sgt. Bertram Groves, was wounded by Flak and in the end Ennis was forced to jettison his bombs a mile away from the aiming point. Ennis then dove to 50 ft to evade the

searchlights with the wounded gunner firing down the searchlight beams and at the enemy gun positions. Groves was hit again, blinded in one eye and severely wounded in the leg, he went on firing. The gun turret was jammed and the port outer engine was hit and stopped. Ennis brought the aircraft back landing at RAF Manston on the coast in order to get urgent medical treatment for Groves who was rushed to hospital. Groves was later awarded the Distinguished Flying Medal. The aircraft scheduled to be the last over the target was that of 10 Squadron's temporary leader "Willie" Tait. His timing was good but the bomber concentrations were thinning out and the ground gunners were able to pick on Tait's aircraft. He lost an engine over the target but continued to drop his bombs. 10 Squadron lost one Halifax on the raid, piloted by Sgt A R Moore it was shot down by a night fighter near Eindhoven, four crew escaped but Moore and two gunners were killed .

Raid 2 - Essen

Two nights later, 1/2 June 1942, was the second "1000" Bomber Raid which was to Essen. This was the second raid carried out by the 'Thousand Force' although the full 1,000 aircraft could not be provided on this night. 956 aircraft were dispatched: 545 Wellingtons, 127 Halifaxes, 77 Stirlings, 74 Lancasters, 71 Hampdens, 33 Manchesters and 29 Whitleys. The plan was similar to the recent raid on Cologne except that many more flares were dropped by the raid leaders, Wellingtons of 3 Group. Crews experienced great difficulty in finding the target; the ground was covered either by haze or a layer of low cloud. Bombing was very scattered. Essen reports only 11 houses destroyed and 184 damaged, mostly in the south of the city, and one prisoner of war working camp burnt out. Casualties were 15 people killed and 91 injured. Bombs also fell on at least 11 other towns in or near the Ruhr. Particularly heavy bombing occurred in Oberhausen with 83 people killed, Duisburg with 52 killed, and Mülheim with 15 killed. 31 bombers were lost: 15 Wellingtons, 8 Halifaxes, 4 Lancasters, 1 Hampden, 1 Manchester, 1 Stirling and 1 Whitley. This was 3.2 per cent of the force dispatched.

This raid has a good account for Jack's Aircraft. 5 minutes to midnight on 1 June 1942, Halifax L9623 took off from RAF Leeming for Essen. The crew were mainly inexperienced. The Pilot was Plt Off Edward Ronald Senior who had briefly flown Condor aircraft in South America, but little else. The Second Pilot (a trainee) was Sgt Leslie Jones Hampton who had been a London bus driver 90 days before. Flight Engineer was Sgt Arthur Edward Hessel. Navigator Sgt Jack Griffiths on his third operational trip. Bomb Aimer was Sgt A B Hedger. Rear Gunner Sgt John Whitfield and lastly, the most experienced crew member with 25 operational trips already flown and recently commissioned, Plt Off John Harold Collier, the Mid Upper Gunner. The weather was reasonable, but the crew found it difficult to find the target due to a layer of cloud below them and hence they bombed blind. On the return journey they flew at 12,000ft and as they crossed the Dutch coast they were attacked by a Me110 night fighter. Cannon shells pierced the skin of the right wing causing the fuel to ignite. The Rear Gunner Whitfield reported his guns had jammed and the aircraft, with three engines u/s and one a runaway, entered a spiral vertical dive. The centrifugal force pinned the crew where they were and prevented them from bailing out. The Pilot and 2nd Pilot were in darkness as the cockpit lighting had been damaged and the only instrument working was the altimeter. The two men managed somehow to pull the aircraft out of the dive and ditched on the sea. Whitfield was thrown out of his turret and killed as the rear fuselage broke. Hedger and Jack took the brunt of the impact and as the water entered the nose of the aircraft they were flushed up into the main cockpit where Collier collided with them as he made his way forward from the mid upper gun turret. Hedger and Jack had leg

injuries, both of Hedger's being broken, and so they had to be helped out onto the port wing by the other crew members.

The release mechanism for the dinghy stowed in the wing had been damaged by the enemy fire and hence the crew had to kick holes in the wing with their boots to get the dinghy out. It then had to be pumped up by hand in the dark, as the compressed air bottle had failed to work. Eventually, the six men got into the dinghy but Collier, realising that Whitfield was missing, re-entered the aircraft which was sinking rapidly and so he got out quickly but not before grabbing a flashlight that was clipped near the exit door. It was about 1:30 am on 2 June by the time the surviving crew got settled in the dinghy having secured splints, obtained from drift wood, to the injuries that Hedger and Jack had sustained and making them both comfortable in the dinghy. They could still hear friendly aircraft passing overhead at about 10,000ft on their way home and Collier flashed SOS repeatedly in the direction of the noise overhead in the hope that someone would see it and report their position. The Germans had quickly spotted the dinghy, but left them as bait in order to attack any would be rescuers. Jack estimated that they were about 10 miles off the enemy coast although it had been impossible to monitor the flight path during the horrific dive, they were probably nearer 20 miles off the coast. As dawn broke they had some of the rations stored in the dinghy, chocolate and water. At about noon, a Coastal Command Lockheed Hudson rescue aircraft, that had been looking for the downed crew, circled and dropped supplies, most of which were lost. Almost immediately two German Me109's pounced on the Hudson that had been caught in their trap although a second Hudson joined in the fight. One of the Hudsons was riddled with bullets, about 100 holes in the fuselage and wings, with the Observer and Side Gunner being wounded. The latter continued firing at the Messerschmitts and was joined by the Rear Gunner when he got his chance possibly damaging one of the fighters. The Germans left and the Hudsons returned to base having lost sight of the dinghy during the fight. Later, two Me109's returned and flew over the dinghy firing their cannons, but they were only taunting as they still wanted their bait in one piece. Next day, 3 June, another friendly plane circled until chased off by two Focke-Wolfe 190's. That evening a German E Boat circled the dinghy at about ¼ mile away but made no attempt to rescue them. The British Authorities were well aware of the German plan.

In the dinghy, the occupants thought they were losing their minds when they were all sure that they heard a dog bark. Their sanity returned when a seal poked his head above the water and barked at them again. The British sent out an amphibian Supermarine Walrus protected by fighters which could have alighted on the sea and picked up the airmen if they had sighted them. The Walrus passed over the dinghy at about 2,500ft but failed to see them. There was an argument amongst the dinghy occupants as most of them wanted to let off a flare, but the more experienced Collier deemed that, as they only had one flare, it should be kept until they could be sure that it stood a chance of being seen. The skipper did not overrule Collier, probably realising that he was the more experienced. On the afternoon of 4 June a Coastal Command Beaufighter, flying very low so as not to alert the Germans, located the dinghy and reported their position. After circling once, the pilot waved and left. After nightfall in the dinghy they heard planes circling to the south and, thinking that their position had been mistaken, resigned themselves to another night on the water. It was, however, part of a diversionary plan. Two high speed launches sped out and set course for the Dutch Coast well aware that they were speeding into a German trap. Flt Lt Brian Clarkson and Fg Off R J C Greenway captained the two launches. 20 miles off the Dutch Coast they were spotted by a Ju88 but it did not attack. In the dinghy they saw a launch

searching for them and this time let off the flare bringing the launch alongside almost immediately.

The airmen were picked up by the launch at about 11:00 pm 4 June, but it took a short while due to their injuries, especially Hedger with both legs broken. At this point, three Me109's swooped down reporting their position and five (some accounts say three) heavily armed E Boats appeared positioning themselves between the launches and the English Coast advancing in line abreast. At 50 yards, they opened fire and, there was only one thing for it, the launches opened the engines to full throttle and charged at the E Boats which were still firing. This took the Germans by surprise and the launches passed through the German formation without a scratch and returned home with the rescued airmen.

To sum up the rescue there is a statement given by John Coller *"I cannot hope to do justice to the brave men who risked their lives to save us, and to the remarkable tenacity and courage the senior officers showed in never abandoning us despite the enormous costs and the risks involved in this amazing rescue against all odds."*

Of the crew of Halifax, L9623 Plt Off Edward Senior was back flying within a couple of weeks and on 21 June 1942 Halifax BB201 was lost without trace on an operation to Emden, Senior and all the crew were killed. Sgt Leslie Hampton was subsequently commissioned, qualified as a pilot and survived the war retiring from the RAF in 1966 as a Flt Lt. Sgt Arthur Hessel was subsequently commissioned and survived the war. Plt Off John Coller was later shot down and became a POW. Sgt A B Hedger was more seriously injured with both legs broken and possibly did not fly again. Jack's leg injury mended quickly as 2 weeks later he was flying as a passenger in a Hudson from RAF Bircham Newton to RAF Leeming.

RAF Bircham Newton is the airfield from which the Coastal Command Aircraft flew during the rescue and hence Jack would have had the chance to personally thank the Hudson crews involved and, on his trip to Leeming, and the Pilot Sgt Somerville could well have been one of the pilots involved.

Raid 2 - Bremen

Jack returned to operations on 25 June 1942. After an air test of Halifax W1052 at 3:00 pm, it took off at 11:35 pm to Bremen on the last of the "1000" Bomber Raids with the same bomb load as previously. The 'Thousand Force' was reassembled for this raid, although only 960 aircraft became available for Bomber Command use. Every type of aircraft in Bomber command was included, even the Bostons and Mosquitos of 2 Group which, so far, had only been used for day operations. The force was composed as follows: 472 Wellingtons, 124 Halifaxes, 96 Lancasters, 69 Stirlings, 51 Blenheims, 50 Hampdens, 50 Whitleys, 24 Bostons, 20 Manchesters and 4 Mosquitos. A further 102 Hudsons and Wellingtons of Coastal Command were sent to Bremen. 5 further aircraft provided by Army Co-Operation Command were also added to the force. The final numbers dispatched, 1,067 aircraft. Parts of the force were allocated to specific targets in Bremen.

The entire 5 Group effort - 142 aircraft - was ordered to bomb the Focke-Wulf factory; 20 Blenheims were allocated to the A.G. Weser shipyard; the Coastal Command aircraft were to bomb the Deschimag shipyard; all other aircraft were to carry out an area attack on the town and docks. The tactics were basically similar to the earlier 'Thousand' raids except that the bombing period was now cut to 65 minutes. Bremen, on the wide River Weser, should have been an easy target to find and the inland penetration of the German night-fighter belt was

only a shallow one. There were doubts about a band of cloud which lay across the Bremen area during the day, but this was being pushed steadily eastwards by a strong wind. Unfortunately the wind dropped in the evening and the bomber crews found the target completely covered for the whole period of the raid. The limited success which was gained was entirely due to the use of Gee, which enabled the leading crews to start fires, on to the glow of which many aircraft of later waves bombed. 696 Bomber Command aircraft were able to claim attacks on Bremen. 572 houses were completely destroyed and 6,108 damaged. 85 people were killed, 497 injured and 2,378 bombed out. On the industrial side, an assembly shop at the Focke-Wulf factory was completely flattened, a further 6 buildings at this factory were seriously damaged and 11 buildings lightly so. Damage was also experienced by 4 important industrial firms - the Atlas Werke, the Vulkan shipyard, the Norddeutsche Hütte and the Korff refinery - and by 2 large dockside warehouses. The actual losses of the Bomber Command aircraft involved in the raid were 48 aircraft, including 4 which came down in the sea near England from which all but 2 crew members were rescued. This was a new record loss. It represented exactly 5 per cent of the Bomber Command aircraft dispatched. This time, heaviest casualties were suffered by the OTUs of 91 Group, which lost 23 of the 198 Whitleys and Wellingtons provided by that group, a loss of 11.6 per cent. Five of the 102 Coastal Command aircraft were also lost. Intruder Operations: 56 aircraft of 2 Group - 31 Blenheims, 21 Bostons, 4 Mosquitos - were dispatched to attack and harass 13 German airfields. 15 of the Blenheims were lent by Army Co-Operation Command and were operating under Bomber Command orders. The Boston and Mosquito sorties were the first Intruder flights by those aircraft types. Two of the Army Co-Operation Blenheims, attacking St Trond and Venlo airfields, were lost. Total Bomber Command effort for the night: 1,016 sorties, 50 aircraft (4.9 per cent) lost. Total including Coastal Command: 1,123 sorties, 55 aircraft (4.9 per cent) lost.

His Pilot was Plt Off Lawrence David Hillier RCAF with whom Jack was to mainly fly for the next month and for eight operations. Hillier from La Tuque Quebec, normally called David, was previously a 2nd Pilot on Halifax L9619 which was on a raid to St Nazaire 15/16 February 1942. On the return journey they got lost and ran out of fuel, the crew baled out and the aircraft crashed at Keld Swaledale.”

Annex C - Certificates & Results

[Research courtesy of EG Vickers]

Certificates of Qualification.

(to be filled in as appropriate)

1. This is to certify that 1203926. GRIFFITHS. J.
has qualified as OBSERVER (NAV)
with effect from 12/12/41. Sgd. [Signature]
Date 12/12/41. Unit 5A.O.S. JUREM.

2. This is to certify that 1203926. GRIFFITHS. J.
has qualified as OBSERVER. (ARM)
with effect from 12/12/41. Sgd. [Signature]
Date 12/12/41. Unit 5A.O.S. JUREM.

3. This is to certify that _____
has qualified as _____
with effect from _____ Sgd. _____
Date _____ Unit _____

4. This is to certify that _____
has qualified as _____
with effect from _____ Sgd. _____
Date _____ Unit _____

RESULTS OF AB INITIO COURSES AND REMARKS

RESULTS OF AB INITIO BOMBING COURSE

Station held nos. A.O.S July 1941.
 Period of Course 20/7/41 - 12/12/41.

Exercise	Bombs dropped	Av. Error in yards	Type of Aircraft
H. L. Group	16	271 ^x radius	
H. L. Applic.	22	149 ^x	Hampden
H. E.	25	Done	
H. L. Moving	25	Applicable	and
L. L.	32	87 ^x	Blenheim IV
Night.	25	Done	

Exam. Marks % 82. Course 16 Hrs. 55.
 Flying Time

REMARKS: PASS/FAIL

Abraham

W. J. Hinkley

RESULTS OF AB INITIO COURSES AND REMARKS

RESULTS OF AB INITIO GUNNERY COURSE

Station held 5 AOS TORBY
 Period of Course 31/9/41 - 13/12/41

Exercise	Rounds fired	% Hits	Type of Aircraft
200 yd. Range ^{NIGHT}	100 600	N/APP	N/APP
No. of G. 28 films, Cine footage	NOT DONE		
Air to Ground	400	N/APP	BLENNHEIM
Beam	200	38.0	"
Beam R.S.	400	8.0	"
Free Astern		N/APP	
Under Tail	500	28.5	"
F. R. Q. T.	500	.4	
Night.	NOT DONE		

Exam. Marks 79.3 % Course 11 Hrs. 0
 Flying Time

REMARKS: PASS/FAIL

Average

Lawson
C.I.



Headquarters,
Path Finder Force,
Royal Air Force.

20th. January 1944.

To:

Flying Officer J.Griffiths (136040)

AWARD OF PATH FINDER FORCE BADGE.

You have today qualified for the award of the Path Finder Force Badge and are entitled to wear the Badge as long as you remain in the Path Finder Force.

2. You will not be entitled to wear the Badge after you leave the Path Finder Force without a further written authority from me entitling you to do so.

Air Vice Marshal, Commanding
Path Finder Force.

Annex D - Missions from Topcliffe

[Research courtesy of EG Vickers]

The verbatim account from Eddie Vicker's extensive research reads as follows:

“{10 Sqn} Operations {after various detachments} resumed from Topcliffe on 19 July 1942 taking off at 11:45 pm for target Vegesack with 7x1000Lb bomb load. Vegesack is NW of Bremen and contained the Vulkan U-Boat and shipbuilding yards. 99 4-engined aircraft - 40 Halifaxes, 31 Stirlings and 28 Lancasters took part and 3 Halifaxes were lost. The force had orders to bomb the Vulkan U-boat yard visually or, if that was not possible, to bomb the town by Gee. The target area was found to be cloud- covered and all the aircraft bombed by Gee. Later photographs showed that no bombs fell in Vegesack. A report from Bremen, a few miles up river from Vegesack, describes how 2 storehouses of military equipment were bombed and completely burnt out. Further damage in Bremen included a wooden-hutted military camp. The number of casualties is not mentioned.

Two days later on 21 July 1942 they took off at 11:45 pm for Duisberg with a 2x4000Lb bomb load. 291 aircraft - 170 Wellingtons, 39 Halifaxes, 36 Stirlings, 29 Lancasters and 17 Hampdens of which 12 aircraft - 10 Wellingtons, 1 Halifax, 1 Hampden were lost. 253 returning crews reported that they had bombed and started many fires but photographs showed that the flares of the leading aircraft, dropped by Gee, were not accurate and part of the bombing fell in open country over the Rhine to the west. This large raid was possibly sent on a moonless night to avoid the German night fighters. It is interesting to note that bombing results were better than on many moonlit raids but the bomber casualties, at 4.1 per cent, were heavier than normal. Returning crews reported that Duisburg's Flak and searchlight defences were not as fierce as in recent raids to that target because of the haze and most of the bomber losses were suffered in the coastal fighter belt. Duisburg reported much damage in housing areas, 94 buildings being destroyed and 256 seriously damaged, with 49 people killed. What Bomber Command documents describe as 'ground sources' later stated that the Thyssen steelworks and 2 other important war industries were hit.

On 24 July 1942, the target was again Duisberg with a 2x4000Lb bomb load taking off at 0:35 am. 215 aircraft - 93 Wellingtons, 45 Lancasters, 39 Stirlings and 38 Halifaxes of which 7 aircraft - 3 Wellingtons, 2 Lancasters and 2 Stirlings were lost. Much cloud was present over the target and the flares dropped by the leading aircraft were scattered. Those bombs which did fall in Duisburg again caused some housing damage and 65 people were killed. On its return W7767 landed at the satellite airfield at Linton-on-Ouse from which it flew back to Topcliffe in the afternoon. There followed three more trips in July.

On 26 July 1942 they took off again at one minute past midnight for Duisberg with the same bomb load. The attacking force was 313 aircraft - 177 Wellingtons, 48 Stirlings, 41 Halifaxes, 33 Lancasters and 14 Hampdens. 12 aircraft - 7 Wellingtons, 2 Halifaxes, 2 Lancasters and 1 Stirling were lost. Thick cloud covered the target area. Duisburg again reported property damage, though not as heavy as on the last two raids. Six people were killed.

That night at 11:05 pm they took to the air again, this time to Hamburg in a force of 403 aircraft - 181 Wellingtons, 77 Lancasters, 73 Halifaxes, 39 Stirlings and 33 Hampdens dispatched in what was probably a full 'maximum effort' for the regular Bomber Command sqns. 29 aircraft - 15 Wellingtons, 8 Halifaxes, 2 Hampdens, 2 Lancasters and 2 Stirlings -

were lost, 7.2 per cent of the force. Crews encountered a mixture of cloud and icing at some places on the route but clear weather at the target. Good bombing results were claimed. Hamburg reports show that severe and widespread damage was caused, mostly in housing and semi-commercial districts rather than in the docks and industrial areas. At least 800 fires were dealt with, 523 being classed as large. 823 houses were destroyed and more than 5,000 damaged. More than 14,000 people were bombed out. 337 people were killed and 1,027 injured.

The last trip of the month was to Saarbrücken on the 29 July 1942, taking off at 11:10 pm. There were 291 aircraft of 5 types on the first large raid to this target and 9 aircraft - 3 Wellingtons, 2 Halifaxes, 2 Lancasters with 2 Stirlings were lost. The defences at the target were not expected to be strong and crews were urged to bomb at lower than normal altitudes. 248 aircraft reported accurate bombing, three quarters of them doing so from below 10,000 ft. Bomber Command claimed severe damage to 2 industrial targets, an ironworks and an engineering works. Saarbrücken's records show severe damage and casualties in the centre and north-western districts. 396 buildings were destroyed and 324 seriously damaged, with 155 people being killed. The afternoon of 30 July was the last time that Jack flew with David Hillier. They flew from RAF Topcliffe back to the main base at RAF Leeming. Hillier was promoted and posted to 405 Squadron at RAF Topcliffe where he was the B Flight commander and on 3 September 1942, flying Halifax DT487 on operations to Karlsruhe, Oblt. Martinek of 1/NJG4 night fighter unit shot them down, all the crew were killed.”

Annex E - Missions from Marham

[Research courtesy of EG Vickers]

The verbatim account from Eddie Vicker's extensive research reads as follows:

“The OC 105 Squadron was Wg Cdr Henry John Cundall, a pre-war RAF Cranwell graduate who remained in the Service after the war to fly jets (e.g. Gloster Meteor and English Electric Canberra), retired in 1961 and died 29 December 2001. Jack and Robert were in A Flight under the flight commander Sqn Ldr William Walter Blessing RAAF who was killed on 7 July 1944 when he was shot down by an enemy fighter whilst attacking Caen; his Navigator Plt Off Douglas T Burke baled out and survived.

Jack's 24th operation {1st with 105 (PFF) Sqn} was on 18 October 1943 in Mosquito DZ589 to Duisberg with 3x500Lb + 1x250Lb bomb load and Robert as Pilot. A force of 11 Mosquitos went to Duisburg and no aircraft were lost. However, on take off, Flt Lt R B Smith and Fg Off P E Cadman in DZ441 swung with the result that the undercarriage collapsed and their aircraft crashed to the ground although neither Pilot or Navigator were hurt.

Two days later on 20 October 1943 in Mosquito DZ591 with the same bomb load, Jack and Robert flew to Knapsack where they bombed the power station. On the 22 October 1943 there was another raid on Knapsack on which Jack and Robert did not participate, but six aircraft of 105 squadron did. Tragically, DZ591, crewed by Flt Lt Gordon Sweeney and Flt Lt William George Wood, was sixth in to attack and failed to return home.

3 November 1943, DZ550 with Jack and Robert flew to Rheinhausen with a 4x500Lb bomb load to drop on the Krupps Factory. A total of six aircraft from 105 Squadron went dropping a similar bomb load, except for Flt Lt R W Bray who had to return home with 2x500Lb onboard that had failed to release.

The next night there was a repeat raid but this time to Leverkusen. 24 Mosquitos attacked a chemical works at Leverkusen, causing fires and a large explosion. Flt Lt John Gordon and Fg Off Ralph Gamble Hayes in DZ587 on the return crashed into a field at Road Green Farm, Hempnall, 10 miles south of Norwich and were killed.

Two nights later on the 6 November 1943, Jack and Robert in ML913 (subsequently lost 6 July 1944 at Schloven), flew to Bochum with 6x500Lb bomb load (full complement). No aircraft were lost. The following day, Jack made a rare flight with another pilot Sqn Ldr James Seward Withers Bignall (retired a Gp Capt in 1965, died Knowsley, Merseyside 1980). This was a Special Duties flight to the bombing range at Otmoor and they made the return flight on one engine.

On 9 November 1943, Jack and Robert revisited Bochum in DZ550 with 4x500Lb bomb load where they bombed the blast furnaces at Bochum. No aircraft were lost but DZ550 landed at RAF Wyton on the return and flew back to Marham the next morning.

15 November 1943 the target was Duisberg and ML896 with Jack and Robert went with the full complement bomb load. Duisberg was a secondary target, the primary being the Rheinmetall Borsig AG ironworks at Dusseldorf. 10 aircraft of 105 Squadron were involved and three had problems. ML913 with Blessing and Burke were hit by Flak which cut through Burke's navigation board and his hand. ML919 with Pilot Flt Lt William Ernest Gifford Humphrey was turned upside down by a shell exploding a few feet below and went

into a spin. Humphrey, who had been hit in the leg and foot, regained control and despite an engine stopping made a landing at Hardwick an American base. ML904 crewed by Flt Lt J R Hampson and Fg Off H W E Hammond were shot down and ended up in Stalag Luft 3 as POW's. The next day Jack navigated for Flt Lt Tommy Welch Horton RNZAF to RAF Defford and back in Oxford ED127.

On 17 November 1943 in ML896 Jack and Robert repeated the Duisberg trip targeting the LR.

The next night they took a 4x500Lb bomb load to Aachen in DZ489. However, they had to abandon the primary target and bombed a last resort target before returning home. They overshot the landing area and crashed without serious personal injury. ~~Some records show that the aircraft was damaged beyond repair, however, Jack's log book shows they took it up on a test flight on 31 December 1943 and perhaps it proved then that the repairs were inadequate.~~⁶⁹

4 December 1943 the target was Hamborn in DZ429, again a bomb load of 4x500Lb was taken. A total of 9 Mosquitos north of Duisburg to where Hamborn is. No aircraft were lost.

Two similar operations followed in LR512, on 10 December 1943 to Leverkusen with 25 Mosquitos and on 11 December 1943 a repeat to Hamborn with 18 Mosquitos. No aircraft were lost.

13 December 1943 ML921 (lost 9 April 1944) to Dusseldorf. 16 Mosquitos involved without loss.

Up to the end of the year there were a further four similar operations with no aircraft lost. 20 December 1943 five Mosquitos to Leverkusen, Jack and Robert in ML914. 21 22 December 1943 four Mosquitos to the power stations at Knapsack, Jack and Robert in ML922. 23 December 1943 twelve Mosquitos to Aachen, Jack and Robert in MM237 (shot down 6 March 1945). 29 December 1943 six Mosquitos to Dusseldorf, Jack and Robert in ML922.

1944 started promptly for Jack on 1 January with ML919 (lost 15 December 1944) flying to Witten where the Ruhrstahl AG steel producers were bombed by eleven Mosquitos. This was followed in the early hours of the 4 January 1944 with a pair of Mosquitos to the Fried Krupp AG Works at Essen.

14 January 1944 was nearly Jack's last operation. Nine Mosquitos attacked the Krupp Stahl AG Works at Rheinhausen, ML921 was met with Flak which damaged the port engine nacelle and stabbed into the starboard side of the fuselage but the managed to return home safely.

There followed three operations with ML911, 20 and 23 January 1944 the Rheinmetall Borsig AG Ironworks at Dusseldorf and 25 January 1944 the Nazi HQ at Aachen. On the second of the Dusseldorf attacks another of 105 Squadron's aircraft got into trouble, due to lack of elevator control, and Flt Lt Kenneth Wolstenholme and Plt Off V E Piper crash landed at RAF Manston. Both the crew and aircraft survived which is fortunate for Football followers 1946-1979. The last of these attacks was by the full squadron (14 aircraft) of which ten found and bombed the primary target.

⁶⁹ This passage is in error as the subject aircraft had different tail number; LR512 not DZ489.

The day after the Aachen raid, Jack and Robert were assigned "special duties" where they flew to RAF Coltishall, stayed overnight and returned to Marham the next day.

On 27 January 1944, there was a repeat raid to Aachen in ML902 followed on 28 January 1944 by a raid on the airfield at Gilze Rijen. For the next two weeks the target was the G&I Jager GmbH ball-bearing factory at Elberfeld and Jack was involved in seven of these raids although on two occasions Essen was attacked and on one occasion Cologne instead. There were no losses on operations for the squadron over this period but one, DZ548, collided with a USAAF Boeing B-17G from Snetterton on 5 February 1944 whilst on a test flight killing both the crew, the B-17G landed successfully.

The next couple of weeks the airfields at Dieren, Volkel and St Trend were attacked without loss. On 11 February 1944, RAF Marham was visited by the Duke of Gloucester and AVM Don Bennett, all the aircrew were presented to the Duke by Wg Cdr "Butch" Cundall.

On 4 March 1944 MM237 in a force of ten Mosquitos attacked Dusseldorf but, whilst previously the bomb load had been 4x500Lb bombs, they now started to carry target indicators (T.I.) in addition to the conventional bombs.

The next day the target was Duisberg, Jack and Robert in ML902 with 3x500Lb + 1 T.I. together with another eight Mosquitos. There were two from 105 Sqn and two from 109 Sqn marking the target for three carrying the 4000Lb "blockbuster" and one other presumably loaded as for ML902. Sqn Ldr Peter J Channer in ML920, one of the markers, had to abandon the task before reaching the target when his Oboe equipment blew up leaving a strong smell of burning in the cockpit, he returned home safely. There was slight but accurate Flak as the others ran in to the target with one of the 109 Sqn hit, not fatally, and his colleague was menaced distracting him. However, 105 Sqn's Flt Lt G W Harding in ML508 succeeded in marking the target and reported a cloud of smoke and a red flare hanging over the target.

On the 9 March 1944, eight Mosquitos went to Dusseldorf, Jack and Robert in MM237 with 3x500Lb + 1 T.I. followed on the 11 March 1944 in ML902 to Munchen Gladbach as part of a 47 aircraft raid on six German cities.

On their next raid, 13 March 1944 in ML913, they carried 4xT.I.'s to the Marshalling Yards at Le Mans. 213 Halifaxes and 9 Mosquitos of Nos 4,6 and 8 Groups were on a repeat raid to Le Mans. 1 Halifax was lost. The local report shows that the Maroc Station and two nearby factories were severely damaged, with many lines being cut and 15 locomotives and 800 wagons being destroyed.

On the 15 March 1944, St Trond airfield was attacked as a diversion to the main force's raid on Stuttgart. MM237 carried 3x500Lb + 1 T.I. This was repeated on the 18 March 1944 as a diversion to the main force's raid on Frankfurt. On 20 March 1944, the bomb load was 4x500Lb dropped on the railway system at Aachen. On 22 March 1944, Deelen night fighter airfield was attacked by a force of twenty Mosquitos, MM237 dropped 4x500Lb. On this raid, which was a diversion for the main forces attack on Frankfurt, there were three aircraft from 105 Squadron. One of them was LR476 with Flt Lt Charles Frank Boxall and Flt Lt T W Robinson and having successfully bombed through 5/10ths cloud one of their wing mounted 500Lb bombs refused to drop. On landing back at Marham, the bomb shook free and exploded killing Boxhall and seriously injuring Robinson. The problem was associated with the grease on the weapon rack freezing."

Annex F - Missions from Bourn

[Research courtesy of EG Vickers]

The verbatim account from Eddie Vicker's extensive research reads as follows:

“After arriving at Bourn, the next evening they {Robert Castle and Jack for 105 PFF Sqn} were off on a diversionary attack on Venlo airfield. This was followed on the 25 March 1944 in LR508 by a marking operation on the marshalling yards at Aulnoye. Six aircraft marked with two in reserve and a total of 192 aircraft bombed the markers. The marking was so accurate that Sqn Ldr Bird reported the reds and greens as being in one big cluster with bombs bursting right across them. No aircraft were lost.

At the end of March 1944, ML921 was part of a diversionary raid on Cologne. The main force went to Nuremberg which turned out to be a disaster. The next day, Jack flew in LR496 with a different pilot on a local flight to RAF Upwood. Plt Off Ian Buchanan McPherson had played Football for Glasgow Rangers before the war and after the war he played for Notts County, Newcastle and then Arsenal. He was renowned as being an inconsistent player and died in 1983.

On 9 April 1944, Jack and Robert in MM237 attacked the marshalling yards at Osnabruck with 4x500Lb bomb load. Only five days previously in a similar attack, Flt Lt Angus Caesar-Gordon (died Puckington, Somerset 1990) in the same MM237 was caught by searchlights and Flak blasted a hole in his main fuel tank, fortunately the aircraft did not catch on fire and the crew returned safely.

On 10 April 1944, Jack was privileged to navigate for the Station Commander Gp Capt Harry Emlyn Bufton in ML911. They marked the targets with a pathfinder force of ten at Ghent for 122 Halifaxes of No 6 Group. Bufton went on to be an Aide-de-Camp to the Queen until 1961 and he died in Van Couver in 1972.

Apparently Robert Castle was unavailable at this time as, for a couple of weeks and seven flights, Jack flew with several different pilots. He flew with the Station Commander Bufton on special duties (MM237) as well as the Ghent operation and, on 19 April 1944, he navigated for Flt Lt Angus Caesar-Gordon for bombing practice at the Otmoor range in ML974, this was Jack's first flight in a Mk XVI Mosquito. The next night the same crew were operational in ML973 marking at Ottignies, some 35 miles south-west of Brussels. No aircraft out of the 196 on the raid were lost and the southern half of the railway yards was severely damaged. On the 25 April 1944 Jack navigated for Flt Lt Donald Coar Dixon RAAF on a routine test flight of ML978, after the war Dixon returned to Brisbane where he worked in the family leather business.



Dixon

On Robert Castle's return, their next operation on 28 April 1944 in ML923 was marking at Aulnoye for the main force. There were 223 aircraft, 191 Halifaxes, 16 Lancasters and 16 Mosquitos despatched. 1 Halifax was lost. Bombing was concentrated and much damage was caused to the railway yards.

The following day in ML974, for the first time, they got to drop a 4000Lb "Blockbuster" bomb on Oberhausen in a force of eight Mosquitos. Oberhausen contained the Ruhrchemie AG Synthetic Oil Plant.

On 1 May 1944 in ML911, they marked the target at St Ghislain for a force of 137 aircraft comprising 89 Halifaxes, 40 Lancasters and 8 Mosquitos which attacked the railway yards with great accuracy. One Halifax and one Lancaster were lost.

On 7 May 1944 Jack was the Navigator for a test flight on ML911 with Flt Lt William Ernest Gifford Humphrey as Pilot. Humphrey survived the war and in later years was responsible for setting up the Community of St Helens Trust to support workers redundant from Pilkingtons. He died in 2009.



Humphrey

A week later on 8 May 1944 they were off marking in ML916 to Nantes for a force of 93 Lancasters and 6 Mosquitos of 3 and 8 Groups to bomb the airfield. One Lancaster was lost. Accurate bombing hit runways and hangars.

The coastal gun batteries now became the target and on 10 May 1944 in MM237 they marked at St Valery-en-Caux and Morsalines (Cherbourg). A total of 414 aircraft comprising 206 Halifaxes, 180 Lancasters and 28 Mosquitos attacked seven coastal gun batteries in the Pas de Calais area. Four of the positions were claimed to have been hit. One Lancaster was lost while bombing the Mardyck position.

On 12 May 1944, again in MM237, they marked the railway centre at Hasselt for a force of 111 aircraft comprising 100 Halifaxes, 7 Lancasters and four Mosquitos - of 4 and 8 Groups. 6 Halifaxes and one Lancaster were lost. Most of the attack fell in open fields and only a few bombs hit the railway yards.

After 10 days rest, Jack was on special duties in ML983 (a Mk XVI) with Sqn Ldr Tommy Welch Horton RNZAF who returned to New Zealand after the war and was still alive in 2012.

Next day, back with the Mk IX MM237 and pilot Robert Castle, they were off marking at Antwerp for 44 Lancasters and 7 Mosquitos of 5 and 8 Groups to attack the Ford motor factory but the bombing missed the target. Some bombs fell on nearby dockside buildings. No aircraft were lost. This was Jack's eightieth operation.

On 6 June 1944, the day Operation Overlord began, they were marking in ML913 at Argentan. 1,065 aircraft comprising 589 Lancasters, 418 Halifaxes and 58 Mosquitos went to bomb railway and road centres on the lines of communication behind the Normandy battle area. All of the targets were in or near French towns. 3,488 tons of bombs were dropped on targets at Achères, Argentan, Caen, Châteaudun, Conde sur Noireau, Coutances, St Lô, Lisieux and Vire. Every effort was made to bomb accurately but casualties to the French civilians were inevitable. Cloud affected the accuracy of the bombing at many of the targets and, at Achères, the Master Bomber ordered the raid to be abandoned because of cloud and no bombs were dropped. 10 Lancasters and one Halifax were lost in these raids; six of the Lancasters were lost in the No 5 Group raid at Caen, where the main force of bombers had to wait for the target to be properly marked and then fly over an area full of German units and guns at bombing heights below 3,000ft. Some details are available of the effects of the bombing. At Argentan, Châteaudun and Lisieux, much damage was done to railways, although the towns, Lisieux in particular, were hit by many bombs. Important bridges at Coutances were badly damaged and the town centres of Caen, Conde sur Noireau, St-Lô and Vire were all badly bombed and most of the roads through those towns were blocked.

Next day, in LR508, they went to Juvisy marking for 337 aircraft comprising 195 Halifaxes, 122 Lancasters and 20 Mosquitos which attacked railway targets at Achères, Juvisy, Massey Palaiseau and Versailles. Bombing conditions were better than on the previous night. All targets were accurately bombed and, although no details are available, it is probable that fewer civilians were killed. The targets were mostly more distant from the battle front than those recently attacked and German night fighters had more time to intercept the bomber forces. 17 Lancasters and 11 Halifaxes were lost, 8.3 per cent of the forces involved.

Early morning on 10 June 1944, in LR503, they went to Rennes marking for 401 aircraft comprising 206 Lancasters, 175 Halifaxes and 20 Mosquitos of 1, 4, 6 and 8 Groups which bombed airfields at Flers, Le Mans, Laval and Rennes, all situated south of the Normandy battle area. Bomber Command documents do not give any reason for these raids; it is possible that the intention was to prevent these airfields being used for German reinforcements being brought in by air because the railways were blocked. All the attacks were successful. 2 Halifaxes were lost on the Laval raid.

The same Evening, in the Mk XVI ML996, they went to Versailles marking for 432 aircraft comprising 323 Lancasters, 90 Halifaxes and 19 Mosquitos which attacked railway targets at Achères, Dreux, Orléans and Versailles. All targets were believed to have been hit but few further details are available. 15 Lancasters and three Halifaxes were lost.

On 15 June 1944, in ML913, they went to Boulogne marking for sorties against German dockyards. Shipping in the English Channel and the Atlantic Ocean were threatened by U-boats and E-boats stationed in France. U-boat docks were protected against conventional aerial bombardment by thick concrete roofs. 297 aircraft comprising 155 Lancasters (some carrying the 12,000Lb Tallboy earthquake bomb, designed by Barnes Wallis), 130 Halifaxes and 12 Mosquitos of 1, 4, 5, 6 and 8 Groups attacked Boulogne harbour. One Halifax was lost. A French report described the great destruction as the worst raid on Boulogne.

The priority target was now the V1 "Doodlebug" sites. On 21 June 1944, in ML913, they went to St Martin l'Hortier as part of an operation marking for a force of 322 aircraft comprising 165 Halifaxes, 142 Lancasters and 15 Mosquitos of 3, 6 and 8 Groups which attacked 3 flying bomb sites. Because of cloud, two of the raids were abandoned after only 17 aircraft had bombed; the third target, at St Martin l'Hortier, was bombed through 10/10ths cloud. No aircraft were lost.

On 23 June 1944, in ML996, they went to Bientques, SW of St Omer, as part of an operation marking for a force of 412 aircraft comprising 226 Lancasters, 164 Halifaxes and 22 Mosquitos of Nos 3, 4, 6 and 8 Groups which attacked 4 flying-bomb sites, which were all hit. 5 Lancasters were lost.

On 25 June 1944, in ML913, they went to Middel Straete (Lederzeele) as part of an operation marking for a force of 739 aircraft comprising 535 Lancasters, 165 Halifaxes and 39 Mosquitos from all groups which attacked seven flying bomb sites, causing fresh damage at most of the targets. (The flying-bomb sites were now becoming so cratered by RAF, 8th Air Force and 2nd Tactical Air Force bombing that results for individual raids were becoming difficult to determine.) 22 Lancasters were lost from these raids; it was a clear, moonlit night and most of the bomber casualties were caused by German night fighters, often operating with the help of searchlights. It is not known why all of the casualties were Lancasters.

Jack was to have gone on his 89th operation with Robert Castle in L913 on 27 June 1944 to mark again at a V1 site, but the aircraft went U/S 30 minutes out and they had to return. This was their last flight together and the end of Jack's time with 105 Squadron.

Robert Breedlove Castle stayed on in 105 Squadron to do a second tour and then after the end of the war left the RAF to teach at Elizabeth College Guernsey. Already married for a year when he teamed up with Jack, he had two sons whilst in Guernsey. Elizabeth College had a Junior Training Corps (later this became a Combined Cadet Force) and Robert was commissioned on 28 April 1948 as a 2nd Lieutenant to command it, rapidly being promoted to Lieutenant and then acting Captain. However, on 2 March 1951 he resigned and rejoined the RAF on a Short Service Commission on 7 March 1951 as a Flight Lieutenant being given a Permanent Commission on 29 March 1954. He retired from the RAF on 29 July 1961 and died in South Dorset in 2001.

Resplendent



Serviceman, Schoolmaster & Family Man