

# DROPPING BRITAIN'S FIRST H-BOMB

The Story of Operation GRAPPLE 1957/58



GROUP CAPTAIN KENNETH HUBBARD OBE, DFC, AFC  
& MICHAEL SIMMONS

On 15 May 1957 Vickers Valiant V-Bomber XD818 under the command of Wg Cdr Kenneth Hubbard, OC 49 Squadron RAF, dropped Britain's first live thermonuclear bomb. The success of Operation Grapple broadcast to the world that the UK had the resolve and the capability to protect her own democracy and that of her Commonwealth. It was a major breakthrough that ensured Britain maintained her place in the most senior influential positions of the United Nations and other corridors of world power, and in the ensuing years provide Britain's deterrent throughout the decades of the Cold War.

Grapple was a top secret experiment that involved units from all the UK's defence services and a multitude of leading scientists and technicians. It was based on the Christmas and Malden Islands in the Pacific Ocean, and therefore the initial transportation and logistics planning was of priority importance. Every care was taken to protect personnel from the unknown effects of this fearsome new weapon. The theme of this book is to explain how the RAF selected and trained the crews who would be responsible for the precision dropping of the several weapons that would detonate during Grapple. It also provides a complete background to the parts played by all other services during this unique period in British history.

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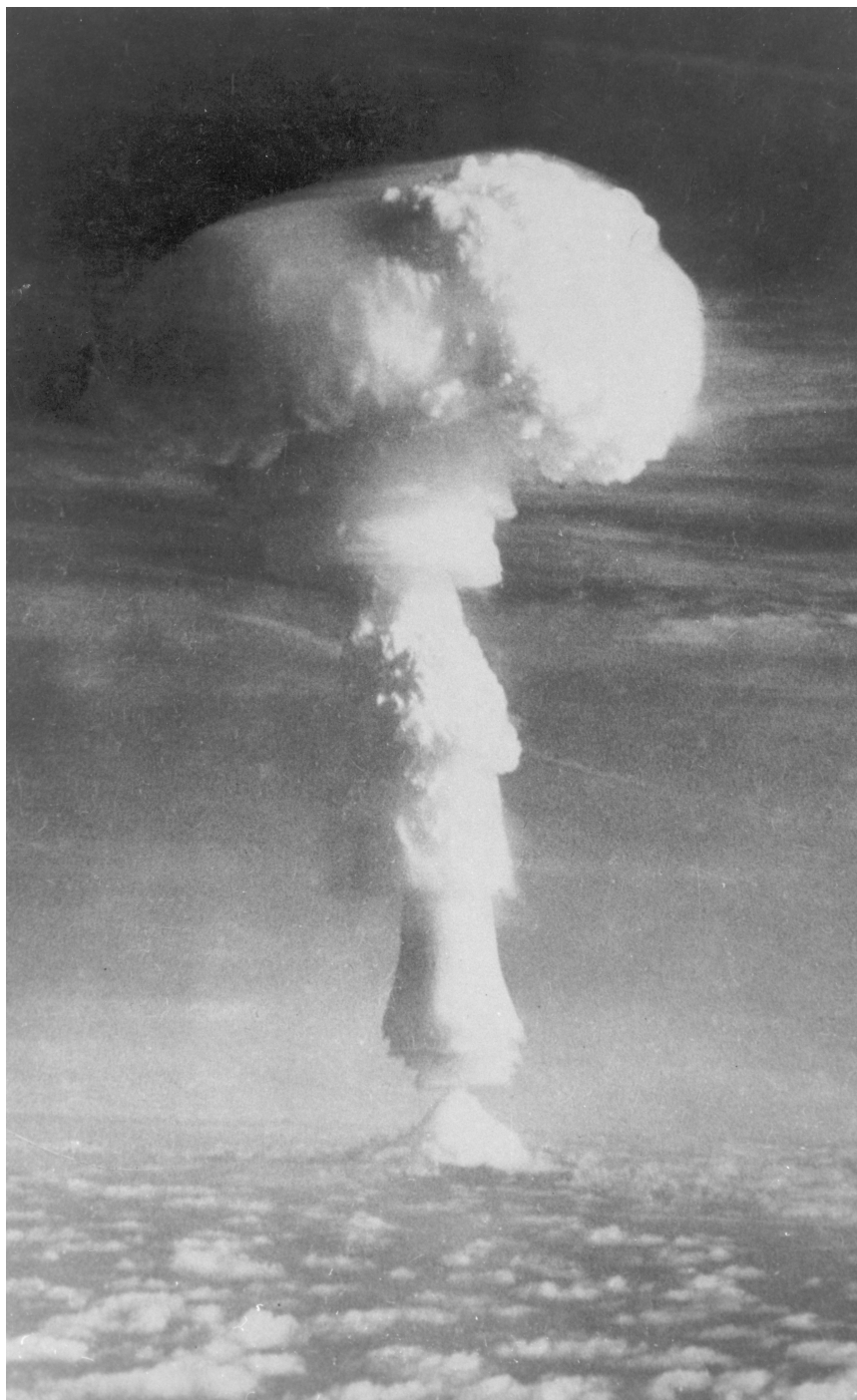
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# DROPPING BRITAIN'S FIRST H-BOMB

*The publication of this edition is dedicated  
to Ken Hubbard.*



Britain's first  
thermonuclear  
bomb (H-Bomb),  
code named 'Short  
Granite', exploded  
off Malden Island  
on 15 May 1957.  
This photograph  
was taken from the  
cameras installed  
in Valiant XD818,  
captained by Wg  
Cdr KG Hubbard,  
OC 49 Squadron  
RAF.



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The Story of Operation *Grapple* 1957/58

Group Captain Kenneth Hubbard OBE, DFC, AFC  
and  
Michael Simmons



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**AVIATION**

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# Contents

Glossary .....	vi
The Authors .....	viii
Preface .....	x
Acknowledgements .....	xi
Chapter 1 Appointed Command .....	1
Chapter 2 Refresher Course .....	5
Chapter 3 Introduction to the Valiant .....	24
Chapter 4 Arrival at Wittering .....	40
Chapter 5 Squadron Preparation .....	66
Chapter 6 Christmas Island .....	100
Chapter 7 'Grapple' .....	135
Chapter 8 Return to Wittering .....	152
Chapter 9 'Grapple X' .....	157
Chapter 10 'Grapple Y' .....	167
Chapter 11 'Grapple Z' .....	177
Epilogue .....	191

# Glossary

ADC	Aide-de-camp
ACM	Air Chief Marshal
Air Cdre	Air Commodore
AM	Air Marshal
AOC	Air Officer Commanding
AVM	Air Vice-Marshal
BCBS	Bomber Command Bombing School
CFS	Central Flying School
C-in-C	Commander-in-Chief
DCAS	Deputy Chief Air Staff
EAAS	Empire Air Armament School
EAFS	Empire Air Flying School
EANS	Empire Air Navigation School
EMI	Electro Magnetic Indicator
Flg Off	Flying Officer
Flt Lt	Flight Lieutenant
Flt Sgt	Flight Sergeant
Form 700	RAF Aircraft Technical Log
FTS	Flying Training School
GCA	Ground Control Approach
Gp Capt	Group Captain
HF	High Frequency
ILS	Instrument Landing System
JOC	Joint Operation Control
MRAF	Marshal Royal Air Force
NCO	Non-Commissioned Officer
nm	nautical miles
OC	Officer Commanding

OCU	Operational Conversion Unit
PSO	Personal Staff Officer
QFE	Airfield Barometric Pressure Setting
QNH	Regional Barometric Pressure Setting
RV	Rendezvous Point on Bombing Circuit
Sgt	Sergeant
SNCO	Senior Non-Commissioned Officer
Sqn Ldr	Squadron Leader
TFC	Task Force Commander
VHF	Very High Frequency
Wg Cdr	Wing Commander



# The Authors

## Group Captain Kenneth Hubbard

Group Captain Hubbard joined the Royal Air Force in August 1940, commissioned as a pilot in May 1941 and was posted to CFS RAF Cranwell for training as a flying instructor. As instructor he served with No. 12 FTS RAF Grantham 1941-43. In 1943, Hubbard was posted to No. 205 Group in Italy. He completed an operational tour with No. 70 Squadron, flying Wellingtons. During the period he was promoted to Squadron Leader and awarded the DFC. After a spell as Flight Commander at No. 77 OTU at Quastina in Palestine he returned to No. 70 Squadron, now with Liberators, and was later Group Training Officer.

From August 1946 Hubbard commanded No. 104 Squadron based in Egypt with Lancasters. Posted to the Empire Armament School at RAF Manby he flew Lancaster *Thor 1* and Lincoln *Thor 2* to South Africa and Canada in 1948. He joined the Directing Staff of the Flying College on its formation at RAF Manby.

As a Squadron Leader Hubbard was Station Commander of RAF Shaibah 1951-53 when this station was involved in the evacuation of British personnel from Abadan. He received the OBE in 1953.

Following an appointment as PSO to the Air Member for Personnel, and attendance at the RAF Staff College, he was promoted and posted to the V bomber force in January 1955. On completion of Valiant conversion at No. 232 OCU RAF Gaydon, Wg Cdr Hubbard took command of No. 49 Squadron at RAF Wittering in September 1956.

No. 49 Squadron was specifically tasked with the live drops element of Operation Grapple. The operation culminated on 15 May 1957 with the first live drop of a British megaton yield weapon, the dropping aircraft being captained by Wg Cdr Hubbard. He and his crew received immediate awards of the AFC.

At the conclusion of the Grapple test series he served at HQ Bomber Command and, as Group Captain, commanded the RAF stations of El Adem and Scampton; the latter station was at that time the base for the Blue Steel-equipped Vulcan B2s of Nos 27, 83 and 617 Squadrons. His final RAF appointment was Group Captain Training at HQ Transport Command. Gp Capt Hubbard left the RAF in 1966 and tried farming in the West Country. This was not to his liking and he joined his cousin's Geoffrey Hubbard's refrigeration

engineering group in 1974 as Sales and Marketing Director of the Vehicle Air-Conditioning Division. Gp Capt Hubbard retired in 1987 and lived quietly with his wife Margaret at Blythburgh in Suffolk. Gp Capt Ken Hubbard was President of the Megaton Club formed from members of No. 49 Squadron who participated in Operation Grapple. The members met annually at the RAF Club Piccadilly.

Group Captain Kenneth Gilbert Hubbard OBE, DFC, AFC died on the 22nd January 2004 aged 83 years.

## Michael Simmons

Michael Simmons was born in Suffolk on 25 May 1947. On leaving school he served a Marine Engineering apprenticeship and continued in this profession until joining Hubbard Engineering Co as a Development Engineer specialising in vehicle air-conditioning systems.

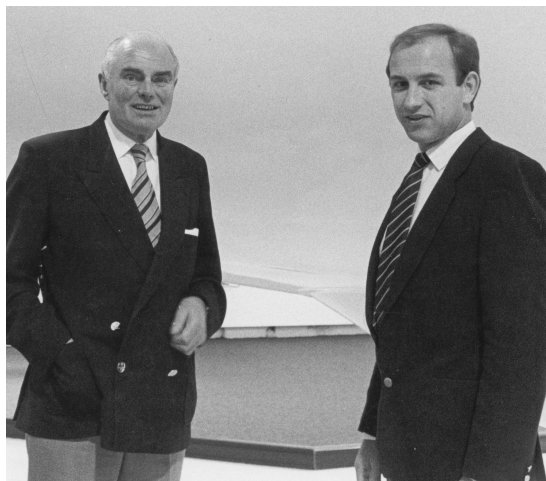
In 1974, K. G. Hubbard, a cousin of G. A. Hubbard, Chairman of the Hubbard-Reader Group, had joined the company to be responsible for the marketing and sales of vehicle air-conditioning systems. From this moment Michael Simmons and Ken Hubbard commenced working together within the company, with Michael Simmons being responsible for the technical aspect, directly under Ken Hubbard.

In 1976 Michael Simmons took up a new appointment managing a Vehicle Installation Centre, which was based at Greenwich, London, and was subsequently made a Director of Hubbard Engineering Co.

Some four years later he returned to Head Office and when Ken Hubbard retired as Marketing Director in June 1982 to concentrate on other activities within the Group, he took over his responsibilities within sales.

'Grapple' was first thought of in 1976 and the project was started in 1983 with the first publication under the title of *Operation Grapple* in 1985.

Today Michael Simmons works for an International refrigeration manufacturing company in the UK in a sales and marketing capacity.



KG Hubbard and MJ Simmons at the RAF Museum, Hendon, with Valiant XD818 in the background. (Author)

# Preface

In assembling the contents of this book, it was difficult to decide at what point in my service career the '49' story should commence. However, since my appointment had been decided by the Air Secretary's department during the latter phase of the Royal Air Force Staff College course, I felt it was appropriate to commence at this time when the course postings were announced in December 1955.

From here, the book unfolds my experiences as the officer destined to command No. 49 Squadron, equipped with the new four-jet Vickers Valiant V bombers, during the years 1956 to 1958 when the squadron was detailed to carry out special live thermonuclear megaton weapon trials in the South Pacific as part of Operation Grapple.

Due attention has been given to all aspects of matters classified as sensitive to security and, for this reason, the story does not provide a detailed insight to any operational procedure effective in the Royal Air Force today.

This book is intended as a tribute to all members of No. 49 Squadron who served under my command during this unique period in our history. Our task was highly specialised and called for exceptionally high professional standards by both air and ground crews. I could not have wished for a more dedicated team of people who, at all times, responded to the very exacting requirements made of them, often under the most trying environmental conditions.

*K. G. Hubbard*



# Acknowledgements

**T**he authors wish to record their appreciation for the assistance and co-operation received from the following friends, colleagues and professional people who have contributed in various ways towards the compilation of this book: Daphne Godbold for typing all letters and correspondence and the original manuscript; Lance Cooper (photographer) for his expertise in reproducing photographs and diagrams included in this book; Air Cdre Henry Probert for allowing us access to the records of 49 Squadron (MoD, RAF Air Historical Branch); Humphrey Wynne for his guidance in all aspects of this book; Wg Cdr William Wood (RAF Museum); Gp Capt Peter Dodsworth (Station Commander) and Flt Lt Andrew de Labat (RAF Wittering); Brian Trubshaw and Norman Barfield (British Aerospace); Sqn Ldrs Derek Tuthill and David Ray (HQ No 18 Group); Air Marshal Sir John Lapsey; Brian Wexham (Vickers); Eileen Norriss (Royal Engineers Library); Jeffrey Pavey (Imperial War Museum); Peter Jones and Steven Smith; Walter Hicks, Donald Morrison, Roger Ramsey, Fred Vening and Wally Watson; and finally, a special thank you to Margaret Hubbard and Jane Livingstone for their assistance and encouragement throughout our project.

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## CHAPTER ONE

# Appointed Command

**T**he long 12-month Staff College course was at last coming to an end. It had been a strenuous and demanding time which had certainly caused me, as well as many of my fellow officers, to burn a great deal of midnight oil in order to complete the various exercises set by the Directing Staff. This course comprised selected officers of Squadron Leader and Wing Commander rank, plus three civil servants of equivalent status, and its aim was to provide an advanced service education to officers of senior rank, thereby fitting them for future command and staff appointments.

Looking back, it is now possible to see that 45 Course was sprinkled with a great degree of talent, for it was to supply no less than one Chief of the Defence Staff, in Wg Cdr Andrew Humphrey (later to become Marshal of the Royal Air Force Sir Andrew Humphrey who sadly died during his term of office. This was a great loss to both the Royal Air Force and the nation, for Sir Andrew was a man of tremendous professional ability). Also from this course there were to emerge two other future members of the Air Council.

The policy at Staff College was to announce during the final month of the course all postings for those graduates completing the course. These postings, having been finalised by the Air Secretary, were passed to the Commandant for announcement on a specified day – a date on the calendar eagerly awaited by all concerned, and I was no exception.

Some three months prior to this date all graduates had been permitted to give three preferences for their next appointment; however, we were all sufficiently experienced to realise that in the Air Secretary's Department it is always a question of which vacancies need to be filled that is the most important deciding factor, balanced with the best qualified officer in each case. Therefore, we knew that the chance of obtaining the posting of choice was no more than 50/50.

My own preference was clear; I had previously completed a staff appointment as Personal Staff Officer to the Air Member of Personnel. Therefore I not only desperately wanted to return to a flying appointment, but thought my chances were good; and so I had requested a posting to the newly emerging V bomber force. The flying qualifications necessary to be accepted into this new

elite force were high; however, this did not worry me as I had confidence in my abilities.

The date on which the postings were to be announced arrived, and there was an air of excitement and expectancy as we all assembled in the main lecture hall to await the Commandant. When he entered, we all stood up as is service custom, and he gave his usual 'Sit down please gentlemen'. He then said 'As you are all well aware, this is the time we announce your next appointments; I know in some cases there will be disappointment but, in others, there will be delight. However, I am sure that you all appreciate, as officers destined for higher appointments, the Air Ministry is conscious of the need to give you a balance of experience. Therefore, whatever now emerges is for the good of your future careers.'

At this stage, the Commandant asked the Deputy Commandant to take over and read out the postings, which were to be announced in alphabetical order. Therefore, before my name was called there were many exclamations of delight at a flying appointment and groans as somebody got landed with a staff job. At last my turn came and I held my breath as the Deputy Commandant called 'Squadron Leader K. Hubbard – posted to the V Force for Flying Duties'. I released a sigh of relief and felt almost light-headed with joy. Little did I know that this was to emerge as the most exciting and challenging task of my life, a task which was to unfold progressively as the following months passed.

With the excitement of postings concluded on this day in December 1955, we soon settled back to the business of morning lectures and discussion. To ensure we returned to hard reality, the Directing Staff issued the final major exercise, to be completed as usual in a specified time scale; this meant further periods of burning the midnight oil. With the anticipation of my future posting in mind, I really did not mind wading through the final exercise, outlining a possible international situation in which I, as Senior Air Staff Officer at HQ Bomber Command, or perhaps a Senior Planner, would be required to produce a Service Paper outlining with clarity the overall situation, aim to be achieved, possible courses of enemy action, review of our forces available, courses of action open to ourselves, and a final recommendation for the Commander-in-Chief of the best possible course of action to achieve the stated aim.

With this exercise complete, typed and presented to the Directing Staff, I turned my attention to the pleasant aspects of Staff College.

Exercise 'Chicken 55' was a stage show presented by course members in the form of a revue covering the antics of the past 12 months. This was the occasion when the Directing Staff were at the mercy of course members, and any habit or peculiar personality of Staff Members was ruthlessly portrayed, to the delight of the audience. 'Chicken 55' was no exception and when the curtain came down the applause indicated that it had been a great success. On this note, the remainder of the evening was devoted to a social occasion in the bar.

One more formal duty was on the programme, and that was the final interviews where each course member is told by the Commandant or Deputy

Commandant how Staff College considers he has acquitted himself during the course. I had been told that this interview could be very brutal and gave a clear indication of future career advancement – or otherwise.

Knowing that in my own mind I had only just made the grade, for my attention to detail in exercises had not been as precise as the Directing Staff required (and this was borne out by the amount of red ink comments which normally adorned my paper when it came back from the Directing Staff) I was prepared to have a rough ride at interview; however, it was not to be, for when my name was called and I presented myself in the office of the Deputy Commandant, Air Cdre Favell, his words were:

Well Hubbard, I think it is true to say that you have found the going hard; we liked your determination and application, although you still have a long way to go before you could be termed a really good staff officer. You have made great progress during the course in setting your thoughts to paper in logical order, and as you gain experience this should come more easily to you. You have demonstrated sound qualities of loyalty and we like the enthusiasm displayed.

Staff College is a milestone in the career of a permanent officer if he is to progress further. You have the qualities to succeed and with your enthusiasm and determination should do well in the future.

I am glad you have got your wish and been posted to the V Force, for we know you have the necessary background experience and, in confirming to you that you have successfully graduated with the symbol psa to be added to your name in the Air Force List, we wish you every success in this next appointment.

I duly thanked the Deputy Commandant and escaped, thankful that the final hurdle was over and all of my thoughts and efforts could be concentrated on the next stage of my path to 49 Squadron, within the refresher jet flying programme ahead of me. Before this, with the Christmas period almost upon us, there were to be a few days leave before I reported for duty early in January 1956, to RAF Manby. So, with all formalities complete at Staff College, I packed my bags, watched by my faithful spaniel 'Crusty', who was well accustomed to this performance; when the bags were loaded into the car he commandeered his seat and we headed for Norwich to spend a few days with my parents.

Reflecting on the past 12 months at RAF Staff College, I realised that in this period I had grown in service experience and stature, in a manner which could only have been achieved at such a place of learning. The pressures had been considerable in academic requirement to express oneself clearly and concisely on paper, having marshalled carefully all the factors associated with the problems set. At times, in the early stages of the course, I wondered if I should acquit myself of a high enough standard to justify my qualifications for the psa. However, as time progressed, I found that my approach to a set problem

became more disciplined, in marshalling my thoughts, sifting the evidence and then setting this to paper in logical sequence. My knowledge of all three services had been expanded by the liaison visits made during the course and indeed we were also introduced to many of the problems of industrial companies.

All the serious work during the year had been carefully balanced by a social programme which included the now famous Staff College garden party at mid-term, the cocktail parties and end of course Ball. Yes, although the going had been tough, I had enjoyed the course and looked forward to my new appointment.



Wg Cdr KG Hubbard, OC 49 Squadron. (*Author*)

## CHAPTER TWO

# Refresher Course

**T**he All Weather Jet Refresher Course was located at RAF Strubby, Lincolnshire, although students and staff were accommodated in the Officers' Mess at nearby RAF Manby. The course was designed to meet the Air Staff requirement for returning officers of Squadron Leader and Wing Commander rank to full all-weather flying effectiveness, having spent a period away from flying duties whilst employed in a staff appointment. For many of these officers this would be their first experience of flying a jet, having been previously only accustomed to piston engine operation. Thus for them the course presented an exciting challenge and readjustment of operating procedures. For such a conversion the Meteor Mk 7 was an ideal aircraft, delightful and exciting to fly, but the standards demanded on this course were high and produced a failure rate when it came to all-weather operation.

On the first Sunday in January, with Crusty by my side, I set course for Manby in my Wolseley 'in convoy' with Sqn Ldr John Mason (who also had been on the RAF Staff College Course), he leaving from his married quarters at Bracknell, me from my flat in Windsor. It was a cold but sunny day with a strong breeze, although the weather forecast was for heavy snow showers later in the day; however, at the time I did not anticipate any difficulty in reaching Manby. We left at about 10.00hrs and made good progress, stopping briefly for lunch; as the sky by this time was looking ominous, we pressed on knowing that if heavy snow commenced, we should soon experience drifting with the strong winds, especially on the open Lincolnshire roads.

We encountered snow some 20 miles from Boston and, in a matter of 30 min, it was obvious that these roads would soon be impassable with drifting as the snow swept across the road. Already it was necessary to keep the speed up to avoid getting caught in a drift. By the time we reached Boston it was quite clear that further progress on that type of country road to Louth near Manby would be impossible. I therefore pulled into the Peacock Royal Hotel in the centre of Boston and decided to call it a day as accommodation was available. A check with the AA confirmed that all roads out of Boston were now blocked, so we resigned ourselves to staying the night in the hopes that our journey could be resumed the next day. A telephone call to the Duty Officer at RAF Manby

confirmed that conditions were no better at that end. Having informed him of our whereabouts and stating we would try to get through the next day if conditions improved, we settled down to an unplanned stay at Boston. I explained to the hotel manager that my dog was with me; this caused no problems, so we retired to our rooms. By this time the hotel had fitted in other luckless travellers forced to spend the night, so the evening produced a pleasantly relaxed atmosphere in the bar, where most of us were relieved not to have been caught out in a snow drift on the open road.

The following day produced no change in the weather – more snow and the roads still blocked. That evening the snow stopped and there was hope that the snow ploughs would soon have cleared the drifts and we could continue our journey to Manby. The morning was bright and clear but freezing hard, and I hoped we could get under way again if reports indicated the roads were open. Whilst waiting for the up-to-date situation, I gave Crusty a good walk round the town, and by lunch time all indications were that the road through to Louth was open, so we lost no time in setting course. After a difficult drive, we arrived at the Officers' Mess, RAF Manby, by about 17.00hrs.

Coming to RAF Manby was a return to my old home, where I had spent three happy years, initially on the flying staff of the Empire Air Armament School, followed by a spell on the Directing Staff of the newly established Royal Air Force Flying College which amalgamated three Empire Schools (namely the EAAS at Manby, the EANS at Shawby, and the EAFS at Hullavington, which were all disbanded).

Having parked my car and walked into the Mess, it was good to be greeted by the familiar faces of the civilian mess staff. Indeed, my old Batman, Mr Godbold, who was now working in the Station Commander's house, came over to see me the same evening to welcome me back to Manby. He was particularly keen to meet Crusty, as on my previous tour he had cared for my dog Butch, a bull terrier, who sadly died during the final months of my stay. Mr Godbold is still alive today at the ripe old age of 80 and often sends me a card at Christmas.

All peacetime RAF stations during the 1950s were fortunate to be staffed by civilian batmen and waiters who had spent their entire careers in the service of the Royal Air Force. Sadly, as these efficient and loyal men retire there are no replacements. Younger men are no longer prepared to undertake this type of work which entails unsociable hours and is more a way of life than a form of employment. Some of the older men are still serving, but they are a fast declining force who served the Royal Air Force with such devotion and maintained the highest possible standards in Mess routine for all types of functions.

RAF Manby, as the home of the Royal Air Force Flying College, was under the command of Air Cdre Gus Walker (later ACM Sir Augustus Walker) – the all weather Jet Refresher Course also came under his command.

In Air Cdre Walker the RAF had a Commandant of unique qualities; he was one of the finest leaders in the Royal Air Force. During the war, when a Station Commander in Bomber Command, he had approached a blazing Lancaster with



a full bomb load in an attempt to rescue the crew, but was caught in the blast as the aircraft and bomb load exploded, resulting in the loss of his right arm. He was a man of great personal leadership ability who was admired and respected by all ranks and renowned for his incredible memory for names.

As the only Wing Commander on the course, I was appointed senior student and duly reported to the Commandant in order to pay my respects. It was good to see the Air Commodore again, for I had last seen him at RAF Manby in 1948 when I was then Deputy OC flying for the Empire Air Armament School. We chatted about Staff College and the V Force and he then gave me a run-down on the all weather course.

In explaining the aims of the course, he stated that most officers on this particular course had been away from active flying for three years because of staff appointments, and in most cases this would be their initial introduction to jet flying. Since the course was very concentrated and would be undertaken over the worst winter period, they would find the transition at times difficult, for there are special physiological aspects to high speed flying, particularly in relation to instrument flying under realistic bad weather conditions. Therefore, since I had kept my flying up to date, he would be looking to me to provide an example for my fellow students.

It is of interest to record that this man, although he had no right arm, never accepted, at any time, that this should affect his flying, and to overcome his disability he had a special artificial arm, complete with clamp which could be attached to the aircraft controls. This allowed his left arm to be free for the throttle controls and in this configuration he flew all types of aircraft as captain. When he wasn't flying he would never wear an artificial arm and the right sleeve of his uniform would be pinned to his side.

The course itself was to comprise 35 flying hours on both the Meteor Mk 7 (the dual control aircraft) and the Meteor Mk 8, which was the single-seat version. Ground school lectures were to cover 62hrs, and the first week was to be devoted to familiarisation of the Meteor inclusive of all fuel, hydraulic and pneumatic systems, emergency procedures, airfield layout and ejector seat drill.

During that first week, weather precluded our flying, so we were forced to concentrate on ground lectures and to get to know the aircraft, which also enabled me to get to know more about my fellow officers on the course. Certainly very few had flown a jet before, and were all excited at the thought of getting back to full flying duties. Some were a little apprehensive of adjusting to the physiological differences between piston-engined medium speed and altitude aircraft, and high speed and high altitude flying, particularly in view of the weather conditions in which we should be operating. At any rate, not having flown one myself over the past four years, I was going to find it hard to produce the results expected of me. Indeed, I was to find this course very difficult from a flying point of view, although I never admitted it!

For those not familiar with the Meteor Mk 7, let me briefly explain that it was a twin engine jet-propelled two-seat advanced trainer, powered by two

Derwent Mk 5 engines. The two pilots' cockpits were in tandem and enclosed by a hinged canopy. No guns were fitted, but a retractable gyro gunsight and camera recorder were mounted in the front cockpit, and neither cockpit was pressurised. The Mk 8 was a single-seat fighter which did have a pressurised cockpit.

During the initial week of lectures, I was impressed by the care taken by the staff of the All Weather Jet Refresher School to learn and retain details of the flying background of each student. This was important, for it allowed them to highlight sensibly the differences in operating medium speed and altitude piston aircraft, and high speed, high altitude jets. These are of course the aerodynamic differences in handling at high altitude and speed, combined with fast climbs and descents.

In this respect emphasis was placed upon physical fitness for improved alertness, due to the shorter reaction times required; optimum resistance to effects of 'G' (force of gravity) on the body, reduced susceptibility to any decompression sickness and fatigue. Following this, the effects of high speed were analysed to stress the importance of pilots' quick reaction and visual alertness. When flying on instruments at high speed, there is a need for an extremely accurate standard to be maintained; in order to avoid false sensation of attitude caused by the part of the middle ear that controls one's balance, physical sensation must always be completely ignored in favour of instrument indication. The misleading sensations are normally over-ridden and suppressed by the visual sense which deduces attitudes from the appearance of the horizon, but problems of disorientation under instrument conditions are more likely to occur when a pilot is suffering from anxiety, underconfidence, fatigue or rough flying. Therefore, to avoid this, a jet pilot must be:

- a) Fit and clear headed.
- b) Confident and fully familiar with instrument procedure.
- c) Relaxed – not concentrating on any one instrument, moving in his seat and avoiding a rigid, tense or hunched up position.
- d) Flying smoothly.

All of these were important points for students to understand before becoming involved in the initial flying programme.

With the first week complete, including a full introduction to the ejector seat for those who were to experience this for the first time, we hoped that weather on the following Monday would allow a full commencement of the flying programme.

The course was scheduled to last 10 weeks and therefore it was essential for the flying programme to get under way if all was to be achieved in such a tight time-scale, bearing in mind likely weather conditions in January and February. For myself, a signal from the Air Ministry stated that my full programme was to