

# *Chapter One*

Chadwick entered the officer's mess at RAF Farnborough, hung up his coat, and was just in time to hear the grave voice on the wireless announce, "This is the BBC home service. Here is the Prime Minister, the Right Honorable Mister Neville Chamberlain." After a pause, a higher pitched, slightly nervous voice continued.

"I am speaking to you from the cabinet room at Ten Downing Street. This morning the British ambassador in Berlin handed the German government a final note stating that unless we heard from them by eleven o'clock, they were prepared to withdraw their troops from Poland at once, a state of war would exist between us. I have to tell you now that no such undertaking has been received, and that consequently this country is at war with Germany." He went on to express his personal disappointment at the development and squarely laid the blame on the shoulders of Adolph Hitler.

When he finished, a babble of talk erupted in the room. It was quelled when a voice shouted "Attention!" and the station commanding officer, Group Captain Delaney-Jones, addressed the assembly.

"We have received the following from the Air Ministry—'the Royal Air Force is now on a war footing, all leave is canceled. No one may leave the station without permission.' To which I can only add my heartfelt concern for our country and wish us Godspeed in defeating the enemy. Stand easy."

Chadwick found he was relieved at the news. The baffling foreign policy moves in Europe and by Britain were past. The situation was simple. The British Empire was at war with Germany—again.

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After lunch Chadwick stopped by the office of Wing Commander Codrington. "Good afternoon, Sir. This is certainly a date we won't forget in a hurry."

"Come in, Allan, I was going to contact you, as you may remember it, for two reasons. We just received your new posting."

"Oh, and where am I going, Sir?"

"You're posted to the Armaments Research Establishment at Boscombe Down."

"That's mostly bomber development there, right?"

"Yes, and to some extent you can blame yourself. You worked with the bombsight people under Dr. Thorpe, and an analysis of bombing results has convinced the Air Ministry that to achieve strategic success with heavy bombers, they should be capable of carrying at least twenty thousand pounds, for a range of at least two thousand miles."

"My God! That will be a huge plane. Four engines. They'll take years to build."

"You're probably right, but there's some sentiment that the process can be speeded up by modifying some medium bombers now in limited production. This is where you come in. Dr. Thorpe was impressed with your experience of bombing both in the field and during trials of the new bombsight. He recommended you to Boscombe as an intermediary between the RAF and the manufacturer of a potentially desirable machine. I spoke to a friend at Boscombe to express how sorry we will be at Farnborough to lose you. However, there's a bright side. The plane selected is the Avro Manchester, so you'll be spending some time in Lancashire."

"Well, that'll make a nice change, Sir. I'd like to thank you for all your help while I've been stationed at Farnborough." They shook hands and Chadwick went to the administrative wing to pick up travel documents and say goodbye to Group Captain Delaney-Jones.

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At the officer's mess he packed his uniforms and flying gear in his issue tin trunk. The Air Force would get it to RAF Boscombe Down. His civilian clothes and personal effects went into two suitcases, which he placed on the back seat of his old Bentley. Chadwick took a quick walk to the crew room to make his farewells with the fellows who were there. They exchanged strained jokes about the rate of promotion now that there was a war.

Back at the mess he found the public phone booth in the lobby unoccupied and he was able to make a brief call to his mistress, Lady Melanie Fitzgibbon, to talk about the serious news of the war. He knew she would be very concerned, as her son was in his twenties and almost certainly would join the Army. He tried to cheer her up and promised to visit her home in Pangbourne at the first chance he got.

Chadwick fired up the car and left for the one-hour trip to Boscombe. The roads were fairly quiet, apart from a traffic jam in Basingstoke. Once clear, he was able to tool along nicely in fourth gear. As he headed for Andover, his mind wandered to the same trip he had made a few years before when he took a German student to Stonehenge. *What was her name? Julia—that was it.* He wondered what had become of her. Presumably, she was back in Germany.

As his thoughts meandered, the great car drove sedately at about thirty miles per hour and he remembered that after Stonehenge they drove to Melanie's house at Pangbourne, his first visit. Suddenly he realized that while his thoughts were far away, he had driven through Andover and he had better start looking for signs to Amesbury and RAF Boscombe Down.

At the station he signed into the officer's mess and was just in time for afternoon tea. He glanced round the room but none of the faces were familiar. Then he unpacked his things, had dinner and went to bed. In the morning he signed in at the orderly office and the adjutant introduced him to the officer he would be working under, Wing Commander Rowley.

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Chadwick looked at him carefully. This was the man who was commanding him in war. Rowley was in his late forties, sported a mustache, and had greying hair.

“Very pleased to meet you, Squadron Leader Chadwick. You come highly recommended from Farnborough. Even before war was declared we were under considerable pressure to produce heavy bombers that met the strategic bombing goals of carrying at least twenty thousand pounds for a range of at least two thousand miles. Now they’ve lowered the boom,” he laughed. “No pun intended—the urgency will get worse.”

“They told me before I left Farnborough that there was a plan to modify the Manchester medium bomber to meet the new specifications.”

“Yes. If it works, that will be much quicker than designing a bomber from scratch, although that approach is also being followed. I’d like you to act as liaison between Boscombe and the A.V. Roe people in Manchester. The managing director is Reginald Dennison and the chief designer is Fred Entwhistle, both top-notch men. A prototype Manchester was flown here and we’ve prepared a report on the changes needed.”

He handed Chadwick a thick folder. “When you’ve digested that, I suggest a talk with some of the test pilots and engineers, and then take a trip to Manchester to talk it over with the Avro people. Your task, in a nutshell, is to get a prototype Manchester Mark II down here as soon as possible. Please see the orderly sergeant and get yourself some office space.”

Chadwick spent the rest of the day reading the report and another day talking to people who had flown the Manchester and evaluated its performance. The next day an RAF blue car dropped him at the Salisbury railway station and he converted his travel warrant for a first-class return ticket to Manchester, London Road, via Euston station. On the platform he put a penny in a slot machine and extracted a bar of chocolate from a sliding drawer. *I wonder how long I’ll be able to keep doing*

*that?* he thought. *Rationing is surely coming if this war lasts any length of time.*

He arrived in Manchester as night was falling. A taxi dropped him at the Midland Hotel. Wing Commander Rowley had given him Reginald Dennison's private telephone number. Chadwick called to make an appointment, and Dennison suggested a meeting at the Chadderton factory in the morning, saying he would send a car. As he tucked into an evening meal at the hotel, Chadwick greatly enjoyed the northern accents of his fellow diners.



In the morning, the Avro car picked him up at eight-thirty and made its way through the dreary northern suburbs of Manchester. He was soon sitting in a conference room with Reginald Dennison and the chief designer, Fred Entwistle. Chadwick explained his responsibility to get a modified Manchester to Boscombe as soon as possible, and produced the folder with the suggested changes.

“We’ve got one of those of our own, too,” Entwistle said. “I’ll get you a copy.”

“In your own words, Mr. Entwistle, what was the problem with the first prototype?”

“It was a fair number of small things and one large one,” Entwistle replied. “We deliberately made the fuselage and main spar robust so that future improvements would not be a problem. These things increased the weight. The cruising angle of attack increased at the cost of increased drag. To compound the problem, the Rolls Royce Vulture engines didn’t produce the thrust at altitude that was planned. Also they proved to be unreliable, although that could be dealt with, I imagine.”

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“What are your major recommendations to reach the twenty-thousand-pound load specification?”

“Wing span increased to one hundred and five feet, and the two Vulture engines replaced by four Merlin engines.”

Chadwick, Entwistle, and Dennison got involved in a long technical discussion which was interrupted by a knock on the door. An elderly woman poked her head in.

“Come in, Mrs. Battersby,” Dennison said.

The woman entered pushing a trolley. “All that talking must have made you dry. ‘Ave a nice cuppa tea.” She poured tea from a large teapot.

The men continued their discussion over tea, and finally Dennison said, “I think it’s time for a tour of the factory, Squadron Leader.” He led the way down some metal stairs to the factory floor.

“Here at Chadderton we manufacture the major aircraft parts. They’re transported by road to Woodford for final assembly and flight test.” He pointed to many components for the Anson, an aircraft that was in strong demand by the RAF. Chadwick was interested to see the assembly jigs and asked a number of questions about the necessary accuracy.

“We’re making duplicate jigs and assembly fixtures for a shadow factory,” Dennison told him, “in case Chadderton is bombed. We’re still producing about three Manchesters a month. Here’s the production area for that. After lunch I suggest we drive to Woodford to see the activity there.”

They ate lunch in a small dining room for senior staff only. Afterwards, a car met them at the main door, and Chadwick, Dennison, and Entwistle climbed in for the drive across the East Manchester suburbs to Woodford. It took about an hour before they drove through the charming village of Bramhall and up to wrought iron gates set between two brick columns. A man came out from a small hut and opened the gate, giving them a mock military salute as they swept through.

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They were met at the main door by a small knot of men. Dennison introduced the works manager, Mr. Bob Wattis, and the chief test pilot, Phil Donovan. After walking past several offices, they passed through a small door into a cavernous building which echoed with the sound of riveters. A dozen Ansons stood on the concrete floor in various stages of completion.

Dennison marched past the Ansons to the far wall, where a Manchester was coming together. A corner of the building was hidden behind a high canvas screen, Dennison opened a small door and they entered a darkened area.

“This is what I particularly wanted you to see, Squadron Leader,” Dennison said as he pointed upwards. As Chadwick’s eyes adjusted to the gloom, he found he was staring at a huge bomber which loomed above him.

“There’s the Manchester, the Mark II. A private venture, hasn’t cost the government a penny— at least not yet.”

Someone laughed.

“When we discovered the shortcomings of the prototype, Fred went into a flurry of calculations and we decided to modify a Manchester already in production to the new design. So, what do you think of that?”

Chadwick was silent for a moment, and then said, “It’s amazing. It does seem to be short of a few things, like four engines.”

“Yes, that’s something we want to talk about.”

“Why don’t we take a look inside, Squadron Leader?” Donovan said, as he led Chadwick to the entrance hatch. Chadwick scrambled aboard and walked up the steep floor to the cockpit. The pilot’s seat and control column had been installed, but most of the flight instruments were missing.

After walking the full length of the fuselage, he climbed back to the ground and Dennison suggested they retire to an office for a discussion of what they had just seen.

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“We built the Mark II that you’ve just examined to get a head start on the changes that will be needed,” Dennison told Chadwick. “But there’s a problem. Six months ago, the Cabinet directed the Air Ministry to prepare for the defense of the British Islands in the event of war by equipping seventy fighter squadrons with new, monoplane aircraft. To that end, Rolls Royce was ordered to increase production of Merlin engines, to be used entirely for new fighters. We’ve tried but we can’t get any Merlin engines diverted here to power the Mark II.”

Chadwick thought about the situation for a few moments. “Have you been to the Air Ministry to plead your case, Mr. Dennison? A.V. Roe has been supplying the RAF for many years. You must have some good contacts?”

“I traipsed down to London and talked to a very high civil service mandarin, who pointed out that policy originated at the cabinet level. Only they can change it.”

“The Air Force uses hundreds of Merlins. There must be a few reconditioned engines we can use.”

“The older models would be no good. The new Merlins put out twenty percent more power. They employ two-stage superchargers, high octane fuel, and numerous component design changes to deal with the increased power. They’re designated the Merlin XX. In order to prove the performance of the Mark II, those are the engines we must have to provide greater thrust.”

After a lengthy silence Dennison continued, “It doesn’t help our case that the plane you saw was built privately. We have no purchase requisition from the government. And even if we did, it wouldn’t enable us to jump the queue for Merlins, I suspect.”

Chadwick was surprised. “But surely the bigwigs can see we need fighters *and* bombers.”

“I tried that tack,” Dennison said. “The high and mighty mandarin told me I didn’t have the strategic knowledge available to the Cabinet. Defense must come first. When the Air



Force and Navy have stood firm, then it will be time to plan an offensive war.”

Chadwick groaned. “Can the Vulture engine be saved? Can you tell me a little about it? In Iraq, I became very familiar with the Rolls Royce Eagle engine.”

Fred Entwistle answered him, “On paper, the Vulture looks like a winner. Two Kestrel engines, one on top of another. Four pistons sharing a common crankshaft throw, six banks of four in an X-pattern, twenty-four cylinders. On paper, two thousand horses with a relatively small cross-sectional area. It bogged down in the details, mostly bearing problems. RR doesn’t want to waste any more time. They just want to concentrate on the Merlin XX.”

“Our engineers have spent many hours looking at this, and their conclusion is go for the Merlin. Besides, the Mark II wings are built to accept the Merlin XX,” Dennison said.

After more discussion, Chadwick said, “I have a friend in intelligence who’s very much into making people believe what he wants, even if it’s wrong. Let me think what he would do in this situation.”

“I think this is a good time to stop for today,” Dennison said, “Let’s reconvene here tomorrow morning and see if a night’s sleep helps Squadron Leader Chadwick come up with anything.”

As they walked to the waiting car, Donovan said to Chadwick, “Are you doing anything tonight, Allan? How about some Lancashire food and a show? I can meet you at the Midland.”



The two pilots met at the hotel at six-thirty and Donovan suggested a restaurant he knew of, off Deansgate, that served genuine local food. Chadwick enjoyed a Lancashire hotpot fol-

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lowed by winberry pie with thick, fresh cream. They walked to the Palace Theatre. The ornate Victorian edifice was showing signs of neglect. The gilt was peeling off the façade and the seats were worn.

Nevertheless, they enjoyed the show. Arthur Askey was the star, and he came on stage between turns and sang comic ditties accompanied by a talented pianist. Chadwick really enjoyed the jokes about Liverpool, which was both Askey's and his hometown. However, he missed having Melanie sitting next to him, and being able to share the jokes with her.

Back in his room at the hotel, Chadwick was horrified to see how dirty the collar and cuffs of his shirt had become. He had forgotten how polluted and sooty the air was in the north of England. He put his shirt in a bag, and placed it outside his room with his shoes. In the morning, his clothes were returned cleaned and pressed, and his shoes polished.

Chadwick continued to enjoy Lancashire gourmet cooking by ordering black puddings, smeared with Colman's mustard for breakfast. The orange marmalade for his Hovis toast was homemade, with thick slices of rind. The Avro car was prompt and he rejoined the team at Woodford before nine.

## *Chapter Two*

“Squadron Leader Chadwick, have you given any thought to the engine procurement dilemma?”

“Yes, as I hinted yesterday, I think we must resort to a little subterfuge, all in a good cause, of course. How many Spitfires and Hurricanes are being manufactured at the moment? For example, do you know how many Spits are being made by Vickers Supermarine at Southampton, Mr. Dennison?”

“I’m on good terms with the Chairman of Vickers, Sir Walter Embry. We often discuss allocation of resources. At present they’re turning out a machine every two days, fifteen Spitfires a month.”

“Do you know him well enough to arrange an unofficial loan of four engines? You could plead a short blockage in the pipeline and promise to return them as soon as possible.”

“I can only try. Perhaps if I give him six strokes next time we have a round he may be amenable.”

“Next question—how does the Air Ministry keep track of engine allocation?”

The works manager, Bob Wattis, was able to answer that. “It’s one of the resident inspector’s responsibilities. When an engine is certified complete and functional at Rolls, it’s assigned to a factory producing aircraft, which has a valid purchase order—for example, Vickers. The paperwork carries the aircraft order requisition number and the engine purchase order details. When it’s dispatched by road, the inspector at the receiving end logs it into the factory.”

Chadwick digested this information. “So, once it’s in the factory it sits until there’s a finished aircraft for it? Sounds like

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we could steal a few for a short time if there was a stockpile of engines.” He was quiet for a short time. Everybody waited for his next question. “Mr. Entwistle, you probably know the answer to this. What is the weight of a Merlin XX?”

“It weighs approximately three quarters of a ton.”

“Good. It could be carried in the bomb bay of a Vickers Wellington. My suggestion is to ‘borrow’ four engines from Vickers and fly them one at a time in a Wellington to Woodford, thus avoiding any paperwork for road transport. As soon as feasible they would be returned the same way.”

There was some heated discussion when Chadwick unveiled his plan. It was suggested that it was possibly criminal.

“Good point,” Chadwick conceded. “We must keep this little stratagem between ourselves and regard today’s discussion as very confidential. It would help a great deal in terms of the legal ramifications if Avro had a purchase requisition for the Mark II. That’s something I must get onto as soon as I return to Boscombe. In the meanwhile, Mr. Dennison, we need Vickers to be our partners in crime. Would it be possible for you to speak to Sir Walter today?”

“I’ll take care of that this afternoon. We can meet tomorrow morning to see how far the scheme has progressed.”

Dennison turned to Phil Donovan, “Phil, I suggest you give Squadron Leader Chadwick a tour of the area in an Anson this afternoon. At some time in the future, he’ll probably be doing some flying from Woodford.”



After lunch in the factory cafeteria, Chadwick and Donovan walked to the dispersal area. They stopped at a small flight-crew room and Donovan donned a pair of white overalls. He

tossed a spare leather flying helmet to Chadwick. They walked to an Anson standing on the tarmac.

Donovan explained, "This aircraft has been flown twice since it was completed. Several minor problems have been corrected and I have to certify ready for delivery to the Air Force. If you'd care to make the flight with me I can show you some of the local countryside."

They carefully examined the exterior of the plane, and wagged the control surfaces. Donovan climbed aboard first and settled into the left-hand pilot's seat. He gestured for Chadwick to sit on the right, and then ran through the cockpit checks and signaled to the waiting ground crew that he was ready to start the engines. All seemed well, and after checking the engine instruments and brake pressure, he waved away the chocks, called the tower, and taxied to the runway. After a magneto test he slowly increased the engine rpm and climbed into the air. It was a typical early autumn day, with cloud cover at 5,000 feet and a visibility of three miles.

At fifteen hundred feet Donovan throttled back to cruising condition, about one hundred knots indicated, and turned left. After a minute, he tilted the right wing. Chadwick could see four shiny railway lines. "Main line, Crewe to Manchester, useful navigational landmark. Look left. You can just see Ringway airfield, under construction. Doesn't do to get it mistaken for Woodford, but it's happened."

They flew northwest. "We're flying over Sale." Ahead was an extensive conurbation of factories and oil refineries. "Trafford Park—some park! Here's the ship canal. The small grass field is Barton."

Donovan set the plane on a westerly course and asked Chadwick if he would like to fly. Chadwick nodded, saying, "I have control."

Soon the River Mersey came into view. Ships of all sizes and description lined the river banks. Donovan pointed north and

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Chadwick gently banked the plane in a rate one turn as they flew over the great port of Liverpool.

"I was born here," he commented to Donovan, who joked, "It looks like a good place to be *from!*"

"Turn east and let's climb to twenty-five-hundred feet," Donovan said. "Winter Hill is poking up and it's getting murky."

The visibility had indeed deteriorated. Dirty yellow and black smoke poured from countless tall chimneys. "Wigan and Bolton," Donovan said. "You can just see Kearsley over on the right."

Chadwick glanced through the windscreen. The cooling towers stood out like stepping stones in a swamp.

"Swing right, Allan," Donovan ordered. "You can let down over Manchester and make a straight approach to Woodford."

He made a brief transmission on the H.F. wireless they carried and Chadwick adjusted the rate of descent to make a landing on the main wheels first as they crossed the airfield boundary. He taxied to the dispersal area and shut down.

"I think this kite is good enough for the Air Force," Donovan joked. "I'll sign it off."

Chadwick thanked him for the flight and Donovan called for a car to take him back to the Midland. Chadwick spent the evening writing down his recollections of the plan they had hatched to get the Mark II flying.

In the morning meeting, Dennison said he had spoken to Sir Walter, who had given his general approval to their scheme. He insisted the details were up to the works manager, Claude Palmer, at Supermarine in Southampton. Donovan suggested that he and Chadwick fly to Southampton that very day and acquaint Mr. Palmer with their plan. As it turned out, Mr. Palmer was not overly enthusiastic about it, but said it had Sir Walter Embry's approval and he would do his best to accommodate Avro. He suggested they fly down in a Wellington so that an

adapter could be made to carry a Merlin engine in the bomb bay.

Chadwick called Stew Piggot, the chief test pilot at Vickers, Brooklands, from Palmer's office to discuss flying a Wellington to Southampton. Piggot said a Wellington could be made available for a short trip to Southampton in two days, Chadwick asked him to reserve the time on the test schedule.

When they returned to Woodford, Dennison was pleased they could get things moving so quickly. He said it would be "cleaner" if Piggot and Chadwick flew the engine to Woodford. If Donovan flew with them it would implicate Avro a little deeper in the scheme than he wanted, should an official inquiry ever materialize.

Chadwick left for Boscombe the next day on an early train, and was able to catch Wing Commander Rowley before he left for the day. Rowley was very pleased at the spirit shown by Avro to make a start on the Mark II prototype. He was dubious about the plan to smuggle four Merlin engines from Vickers but told Chadwick to go ahead, saying, "All is fair in love and war."