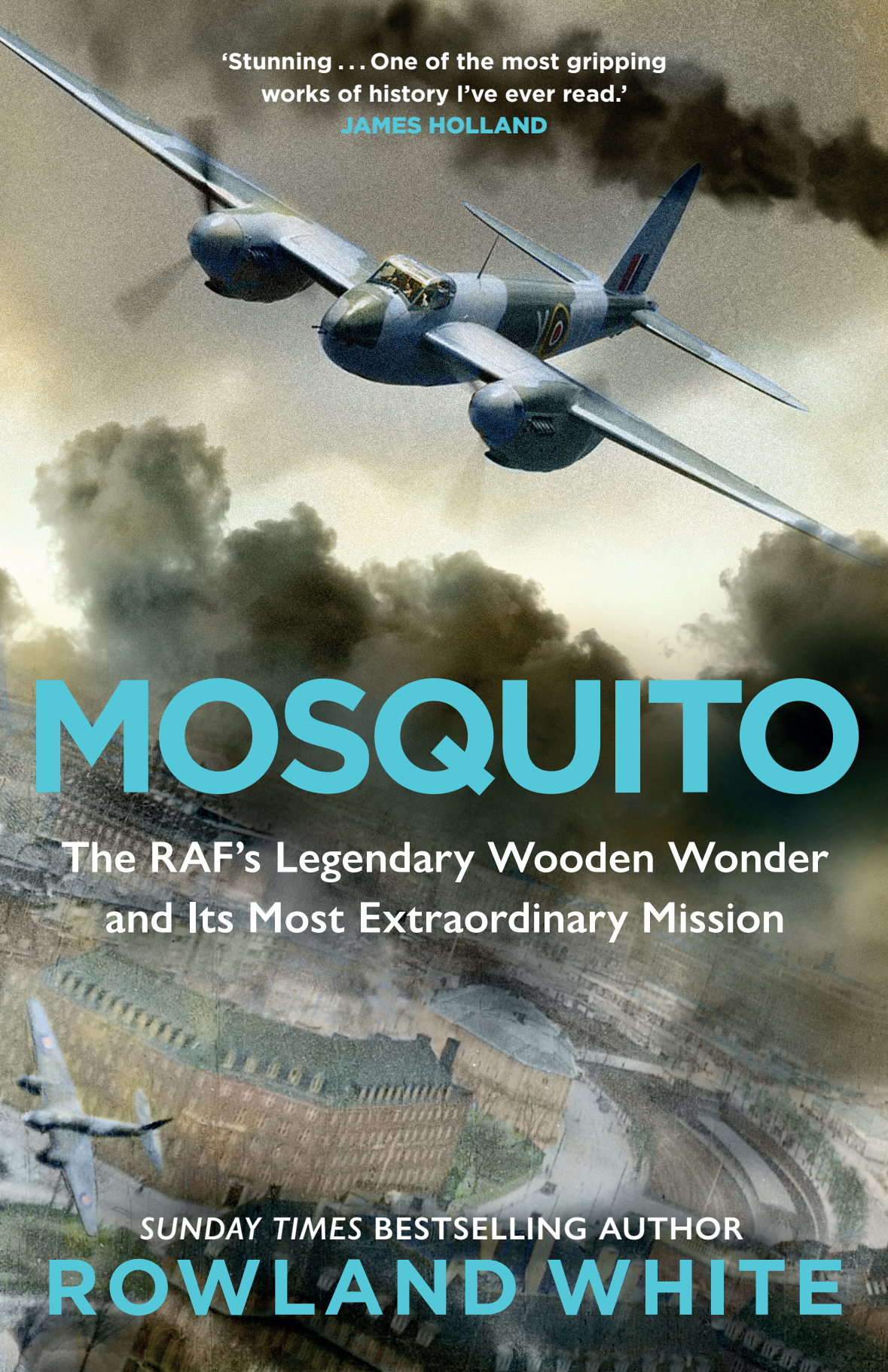

'Stunning . . . One of the most gripping works of history I've ever read.'
JAMES HOLLAND
MOSQUITO
The RAF's Legendary Wooden Wonder and Its Most Extraordinary Mission
SUNDAY TIMES BESTSELLING AUTHOR
ROWLAND WHITE

MOSQUITO

www.penguin.co.uk
Copyrighted Material

Also by Rowland White

Vulcan 607
Phoenix Squadron
Storm Front
The Big Book of Flight
Into the Black
Harrier 809

Copyrighted Material

MOSQUITO

The RAF's Legendary Wooden Wonder
and Its Most Extraordinary Mission

Rowland White



bantam

Copyrighted Material

TRANSWORLD PUBLISHERS
Penguin Random House, One Embassy Gardens,
8 Viaduct Gardens, London SW11 7BW
www.penguin.co.uk

Transworld is part of the Penguin Random House group of companies
whose addresses can be found at global.penguinrandomhouse.com



First published in Great Britain in 2023 by Bantam
an imprint of Transworld Publishers

Copyright © Project Cancelled Ltd 2023
Maps copyright © Lovell Johns Ltd.

Rowland White has asserted his right under the Copyright,
Designs and Patents Act 1988 to be identified as the author of this work.

Every effort has been made to obtain the necessary permissions with
reference to copyright material, both illustrative and quoted. We apologize
for any omissions in this respect and will be pleased to make the
appropriate acknowledgements in any future edition.

As of the time of initial publication, the URLs displayed in this book
link or refer to existing websites on the internet. Transworld Publishers
is not responsible for, and should not be deemed to endorse or recommend,
any website other than its own or any content available on the internet
(including without limitation at any website, blog page, information
page) that is not created by Transworld Publishers.

A CIP catalogue record for this book
is available from the British Library.

ISBNs 9781787634534 (cased)
9781787634541 (tpb)

Typeset in 10/14.5pt Stone Serif ITC Pro Medium by Jouve (UK), Milton Keynes
Printed and bound in Great Britain by Clays Ltd, Elcograf S.p.A.

The authorized representative in the EEA is Penguin Random House Ireland,
Morrison Chambers, 32 Nassau Street, Dublin D02 YH68.

Penguin Random House is committed to a sustainable
future for our business, our readers and our planet. This book
is made from Forest Stewardship Council® certified paper.



Copyrighted Material

For Bunch and Harvey

Copyrighted Material

Copyrighted Material

CONTENTS

Author's Note	ix
Acknowledgements	xi
Maps	xiv
Preface: 21 March 1995	xxi
Prologue: 27 May 1940	1
Part One: 1943	7
Part Two: 1944	153
Part Three: 1945	321
Epilogue	477
Postscript: 17 October 2021	485
Glossary	491
Bibliography	499
Appendix: Mosquito Cutaway	513
Picture Acknowledgements	519
Index	523

Copyrighted Material

Copyrighted Material

AUTHOR'S NOTE

I hadn't intended to write this book. The plan had been to follow up *Harrier 809* with a story that took place a couple of years later set within the RAF's then young Tornado force. Then we were all told to stay at home and, unable to complete the interviews with the participants as expected, I pivoted towards a Second World War story that would rely less heavily on similar conversations. That in 2020 we would spend the next few years marking the eightieth anniversaries of the war's major milestones meant I would have no option but to look beyond a handful of surviving veterans for material. The Tonka was out and the Mosquito was in. Happily, I was going to get to spend some time in the company of the original multi-role combat aircraft.

I grew up watching movies like *The Dambusters*, *Where Eagles Dare*, *The Guns of Navarone* and *The Great Escape*. I wore out a treasured LP called *Great War Movie Themes*. But, as a boy, it wasn't always immediately clear to me which of these films were based on fact and which were fiction. As it turned out, *633 Squadron*, a favourite of mine – and one which enjoyed one of the best theme tunes – was based on a novel written by Frederick E. Smith (published by happy coincidence by my own publisher, Transworld) that drew heavily on the real-world exploits of the de Havilland Mosquito and its crews. The scene in which a low-flying Mosquito bombs a single Gestapo headquarters where a member of the Resistance was held prisoner was inspired by the precision attacks mounted by a cadre of 140 Wing Mosquito crews who, by the war's end, had earned themselves a reputation as the 'Gestapo Hunters'. It was the work of these extraordinary aviators, flying de Havilland's remarkable Wooden Wonder, that I wanted to try to bring to life in *Mosquito*.

Copyrighted Material

Drawn in by an urge to write about one of the most charismatic, successful and admired aeroplanes ever to take to the sky, I soon realized that, in focusing on the 140 Wing Mosquitos, I had also been gifted a much richer story of spies, saboteurs, grand strategy and the role of air power in the last years of the war. And I got to write about the awesome P-51 Mustang too.

While I was more dependent on existing sources than in previous books, I've strived to present the material in the same way. And in trying to tell a fast-paced story, I've not had to muck around with the facts in order to do so. Everything that follows is, to the best of my knowledge, a true and accurate account of the events described. I've drawn on a wide variety of sources and this is reflected in the dialogue in the book. Where it appears in quotation marks it's as recorded in previous accounts and records, published and unpublished. Where speech is in italics – sometimes the call-and-response checks that accompany any military flying – it represents genuine dialogue that's been taken from another source to add richness to a scene. I hope it can be argued with a degree of confidence that it's what would have been said. Finally, where internal thoughts are included in italics, they are quoted directly from primary and secondary sources.

As ever, I hope this is a book that does justice to all those whose stories I've told. And, of course, any mistakes are my own.

Copyrighted Material

ACKNOWLEDGEMENTS

As ever, getting to the point where a book's been printed and published will have involved the help and forbearance of a great many people. On this occasion, I need to begin by thanking my agent, Mark Lucas, and my editor, Bill Scott-Kerr, for being so supportive of the change of plans that led to *Mosquito*, for bringing their teams on board and for dispatching the inevitable paperwork that followed. Mark and Bill have both been true friends through a challenging few years. I've been very lucky to have them in my corner.

Once we were up and running, Martin Sismore, Darlene and Chris Storrar and David Drew were all kind enough to answer my questions and share valuable insights about family members who took part in Operation CARTHAGE. Thank you.

I'm also grateful for the specialist knowledge freely and generously offered by John Lilley of The People's Mosquito, aviation writer and Mosquito expert Martin Bowman, and historians Andy Bird, Helen Fry, David Palmer, Aad Neeven and Robert Lyman.

Maggie Appleton at the RAF Museum, Sebastian Cox at the Air Historical Branch, Alistair Hodgson at the de Havilland Museum, Anne Wickes at the Second World War Experience Centre, Henrik Lundbak at the Danish Museum of Resistance, and Martin Collett at the Auckland Museum were all generous with their time and support. Thanks, too, to Alex Audley of the 81 Squadron Association.

There is no greater authority on Operation CARTHAGE than Derek Carter. A Brit living in Denmark, he's made research into the raid his life's work. He met, interviewed and befriended many of the participants and led the campaign to erect a memorial in Copenhagen to the airmen who lost their lives. Derek was kind enough to talk

Copyrighted Material

to me about the mission and to point me in the right direction on various points. I'm looking forward to his own book on the raid when it comes.

At a time when it was hard to conduct archival research, Stephen Kippax's digitized archive of SOE files was a lifeline. I could hardly believe the speed with which anything I asked for seemed to drop into my inbox. Thanks, too, to Andrew Lownie for steering me in Stephen's direction.

For a treasured and invaluable insight into what it was like to fly and fight in the Mosquito, I'm enormously grateful to former Mosquito Pathfinder pilot (and Me 262 survivor) Colin Bell for taking the time to answer my questions over lunch at the RAF Club. I had a short but unforgettable first-hand experience of flying in a Merlin-engined warbird thanks to Andy, Danny and Amanda at Ultimate Warbirds.

Friends and fellow travellers James Holland and Tom Petch gave valuable advice and encouragement. It was sometimes good just to have a chance to enthuse about the project with someone whose eyes didn't glaze over. My friend Marcus Wood was also kind enough to look interested when I rattled on about it. More importantly, he was able to provide me with a bolthole in which to write. So, too, did my friends Annabel and Eddie Rudd.

In Denmark, Søren Flensted was kind enough to introduce me to John Holstein, who as a young boy survived the bombing of Copenhagen. Spending the day with John, who was kind enough to drive me around the city to visit all the relevant locations, was an absolute pleasure and a privilege. It was also a great pleasure to meet my mother's old friend Emma Pedersen. Emma grew up in a little fishing village on the east coast of Funen and shared her still vivid memories of the war when I visited her in Odense. Thanks, too, to Sarah, Annette and Hank Olesen for their help and hospitality. Sarah's friend Tia Maria Thorndahl was also kind enough to make time to meet me after a long day working at the Museum of Danish Resistance.

In Australia: Eamon Hamilton and Mark Lax. Mark was exceptionally generous in sharing much of the research material he'd gathered for his own book *The Gestapo Hunters*. And my good friends Andre and Katrina Calder finally gave me a reason to be grateful for

Copyrighted Material

their move to Australia when they were able to get hold of what seemed to be the last available copy of that book anywhere in the world. Sir Basil Embry's son Mark was kind enough to offer to help, and I regret not properly taking him up on that.

Lalla Hitchings, who has done all my transcription in the past, was able to help with the first few batches for *Mosquito* before taking well-earned retirement. Debra Armstrong very capably stepped into the breach. Phew. I also had the challenge, this time round, of needing to translate large amounts of foreign-language material – so, thanks to DeepL, and to my son Rory, who helped out with a useful chunk of it. My wife's wonderful aunt, Dominique Fiol-Regester, also did an incredible job translating from French. Thanks, Yaymime!

I remain very fortunate indeed to be published by Transworld Publishers. Once again, I'm incredibly grateful to the whole team working alongside Bill Scott-Kerr. In something like order of appearance, huge thanks to Nicole Witner, Rich Shailer, Phil Lord, Viv Thompson, Holly McElroy, Sophie MacVeigh, Tom Chicken and Chris Turner and their respective sales teams, and publicist Tom Hill. Thanks, too, to my copy-editor, Dan Balado, whose involvement once more has been a tremendous reassurance. And to Roy McMillan, for brilliantly reading the audiobook.

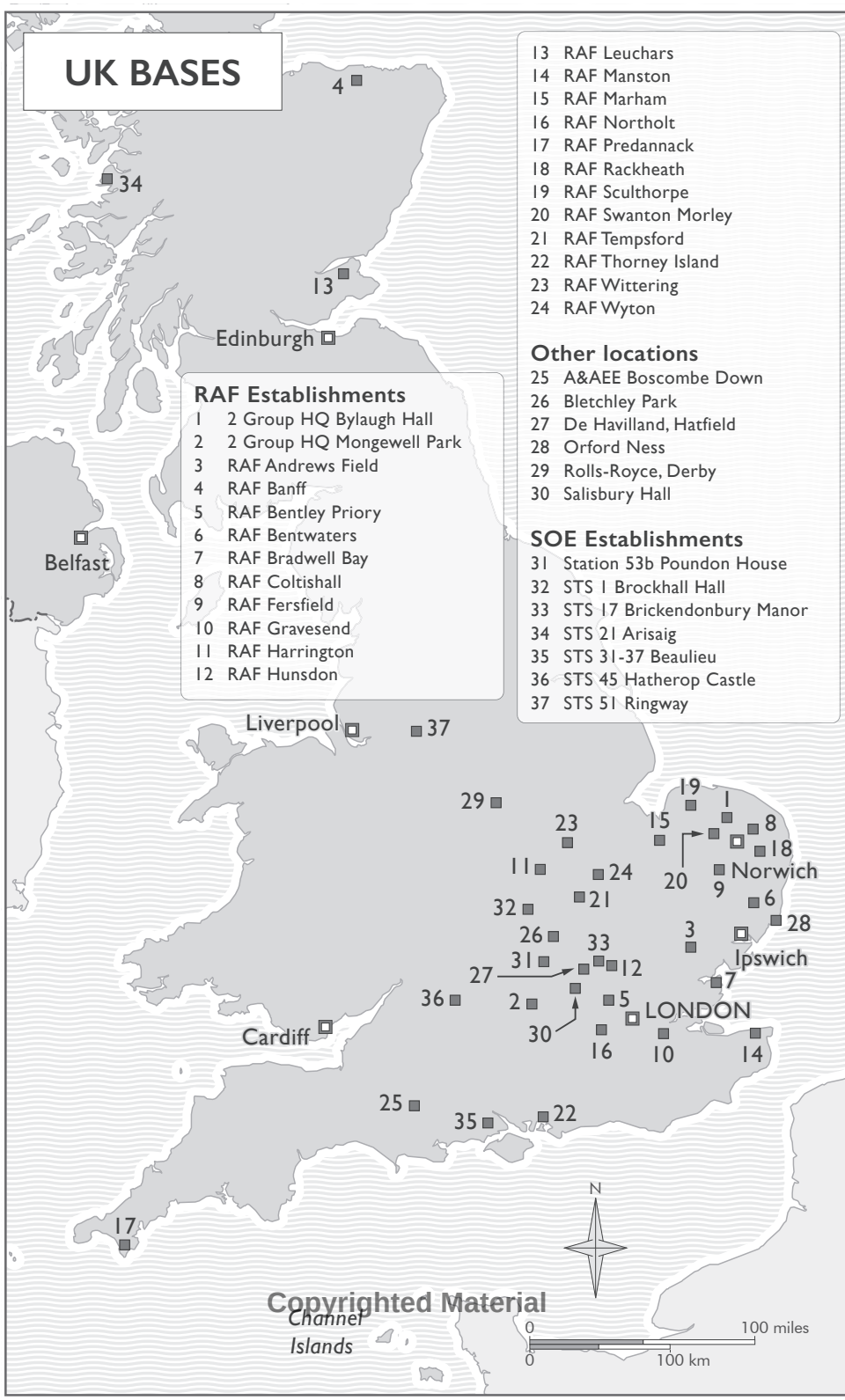
No set of acknowledgements would be complete without a heartfelt thank you to Louise Moore, managing director at Penguin Michael Joseph, where I work.

My parents, by dying, didn't really help with getting the book done. But Mum, at least, got to share my excitement about what I was working on and it became a catalyst for re-establishing contact with her friend Emma. That's something to cherish.

Throughout this difficult time, my brother Matthew and his wife, Sophie, helped keep the show on the road.

Finally, the biggest thank you to my wonderful family who somehow – most of the time at any rate – put up with my preoccupation and absence. I know it's not always easy. And it's fair to say the last few years have been anything but. But thanks to you all, the memories are happy ones. You never cease to amaze and inspire me. I'm so proud of you all. So, to my wonderful wife, Lucy, and to the equally wonderful Rory, Jemima and Lexi – *thank you* xx.

Copyrighted Material



Copyrighted Material

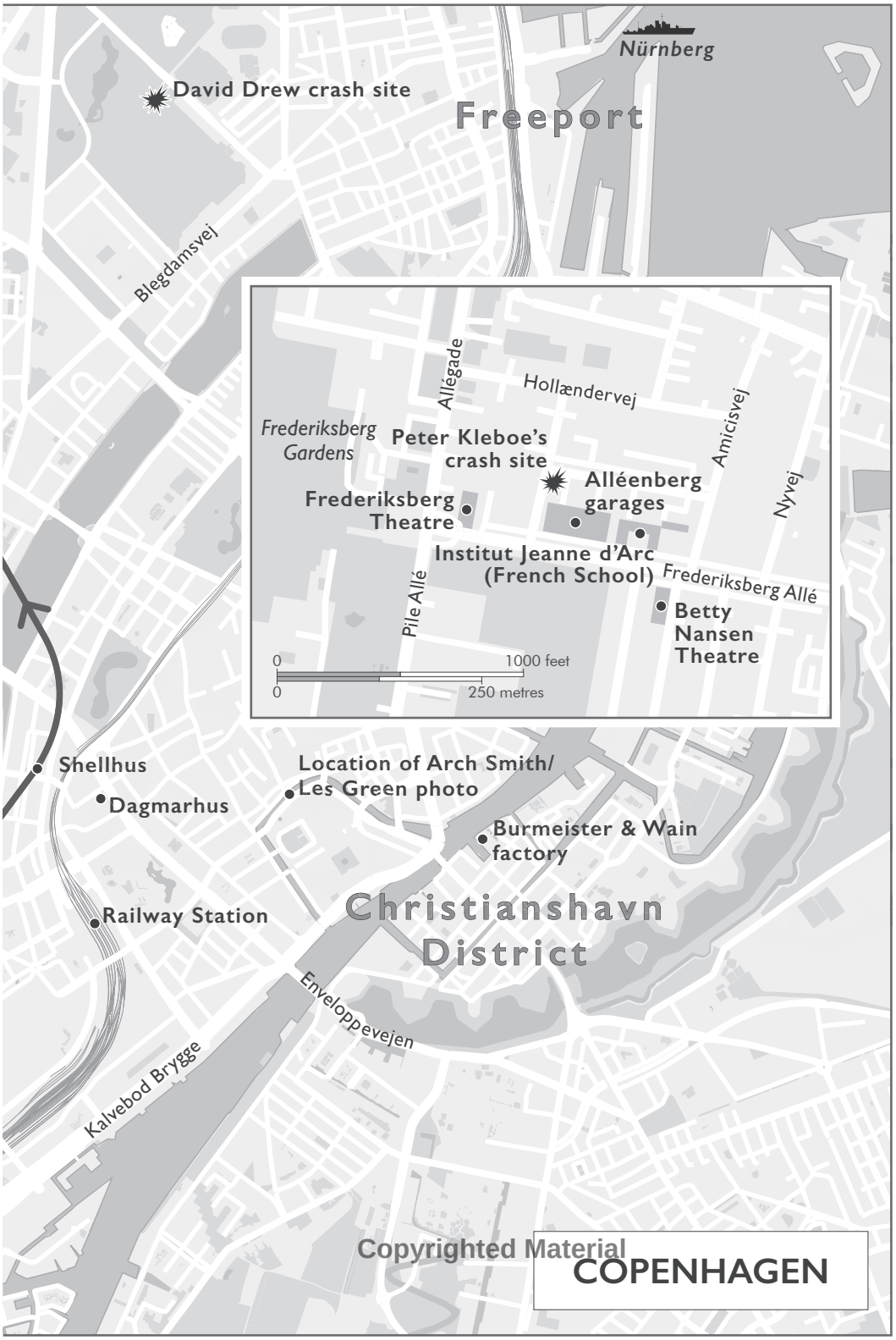

NORWAY
SWEDEN
Skagerrak
Skagen
Aalborg
Skørping
Lake Madum
Grove
Aarhus
Sønderborg
Jutland
Henne
Esbjerg
Odense
Funen
Storebælt
Landskrona
Helsingborg
Helsingør
Ven
Øresund
Skodsborg
Værløse
Copenhagen
Kastrup
Malmö
Lake Tissø
Zealand
Bækkeskov
Langeland
Lolland
Engestofte
Lake Maribo
Flensburg
Kaltenkirchen
GERMANY
N
DENMARK
Copyrighted Material
0
60 miles
0
60 km

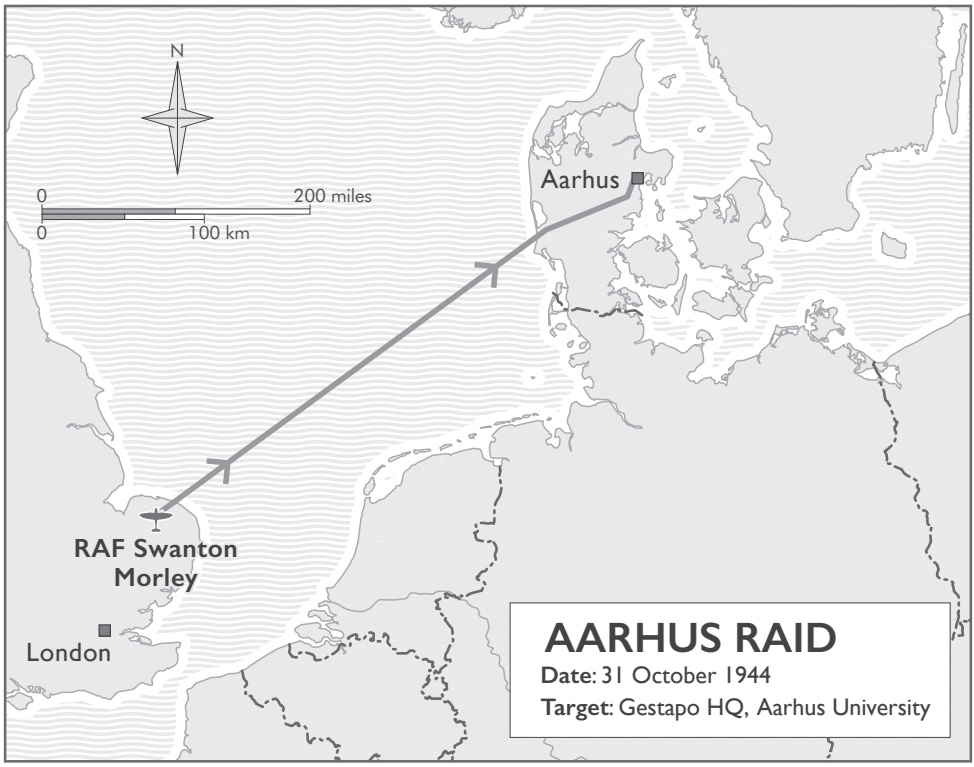

EUROPE 1943
N
0
200 miles
0
100 km
Copyrighted Material
Oslo
Stockholm
RAF Leuchars
Aarhus
Copenhagen
Bornholm
EAST PRUSSIA
Rastenburg/ Wolf's Lair
Flensburg
Peenemünde
Kiel
Rostock
Warsaw
Lübeck
Stettin
Hamburg
Berlin
RAF Swanton Morley

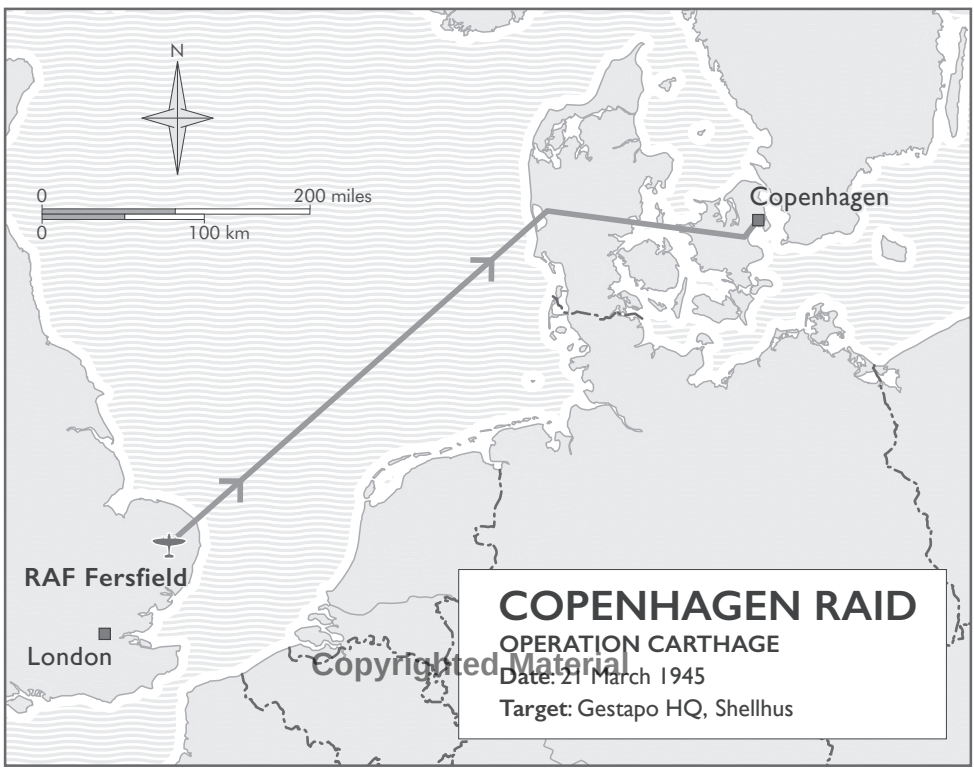

RAF Fersfield
London
Ijmuiden
Amsterdam
Osnabrück
The Hague
Arnhem
Münster
Duisburg
Dusseldorf
Cologne
Melsbroek
Brussels
Cambrai-Epinoy
Abbeville
Amiens
Dieppe
Rosières-en-Santerre
Normandy beaches
Le Havre
Caen
Paris
Falaise
Ste Agathe-d'Aliermont
St Malo
Château Maulny
Le Mans
Brest
Mur-de-Bretagne
Tours
Châtellerault
Poitiers
Bonneuil-Matours
Limoges
Geneva
Metz
Rhine
Dresden
Jena
Prague
Vienna
Budapest
Berchtesgaden
Comacchio
Perpignan
Rome
© Copyrighted Material



Copyrighted Material


Nürnberg
David Drew crash site
Freeport
Blegdamsvej
Allégade
Hollændervej
Amicisvej
Nyvej
Frederiksberg Gardens
Peter Kleboe's crash site
Alléenberg garages
Frederiksberg Theatre
Institut Jeanne d'Arc (French School)
Frederiksberg Allé
Pile Allé
Betty Nansen Theatre
0
1000 feet
0
250 metres
Shellhus
Dagmarhus
Location of Arch Smith/ Les Green photo
Burmeister & Wain factory
Railway Station
Christianshavn District
Enveloppevejen
Kalvebod Brygge
Copyrighted Material
COPENHAGEN





Copyrighted Material

PREFACE

21 March 1995

PETER LAKE STANDS with his wife, Lois, in the chill midday of a Danish spring. They're both wrapped up warm. Frederiksberg Allé, a wide boulevard lined with linden trees in an upmarket neighbourhood of Copenhagen, is a long way from the warmth of late summer in Caulfield, their home in the suburbs of Melbourne, Australia. Behind them, on the other side of the road, is the small Betty Nansen Theatre and Frederiksberg church cemetery. The couple are looking the other way, though, north towards four red-brick apartment blocks that serve as a background to a sculpture set back from the pavement. Carved in pale grey stone, a nun cares for a boy and a girl. It's a memorial to the school that used to stand on this site.

Lake, now in his seventies, is here by special invitation. So, too, are six other smartly dressed, ageing but still straight-backed men who are part of a congregation that's near eighty-strong. The seven men are all former flyers. Between them they possess an excess of DSOs, DFCs and AFCs. One of them, a retired veterinarian from Cheshire, was an ace before his nineteenth birthday; another, the most highly decorated RAF navigator of the Second World War. They've been joined today by diplomats from Denmark, the UK, Australia, Norway and Israel. The Mayor of Copenhagen, too.

It's fifty years to the day since Lake and his comrades-in-arms flew a vital mission over the Danish capital in the last months of the war. Then, too, it had been at the invitation of a grateful nation.

It's too much for Lake. A kindly, sensitive man, he's finding the brief ceremony in front of the school memorial overwhelming. There

Copyrighted Material

are tears streaming down his face. Then, as the service continues, he recognizes the voice of a woman standing nearby.

'That voice is on the BBC tape,' he tells Lois, remembering a documentary made in the seventies about the events they are commemorating today. 'That's one of the students.' He turns to look and catches the eye of a blonde woman maybe ten or fifteen years younger than he is. Straight away, she threads her way through the crowd to comfort and reassure him. Her name is Inge Cordes, née Jensen. And she had been a pupil at the school on the day it found itself on the frontline of the war against Hitler.

'We did not face the Germans in battle,' she tells him. 'This was our battle. You are our friend.'

And Lake's tears keep flowing.

Copyrighted Material

PROLOGUE

27 May 1940

Copyrighted Material

Copyrighted Material

Fires burned along the French coast, staining the skies above Calais with thick, dark smoke. As Wing Commander Basil Embry ordered his crews to don tin hats to protect against enemy flak, the thought that he was going to have to abandon France to its fate was almost too much to bear.

Over the fortnight since 11 May, when 107 Squadron's Bristol Blenheim IVs had been ordered into action against the German blitzkrieg, he'd nursed a battle-damaged aeroplane back home on fifteen separate occasions. He and his two-man crew had been lucky to survive after flak blew a grand-piano-sized chunk out of their port wing. Embry was bone-tired all the time, prone to falling asleep while dressing or trying to unwind over a beer. Even so, the signal from 2 Group headquarters informing him that he was to be promoted and would be handing over command of 107 was unwelcome. The Battle of France was at a critical stage. The sight of burning villages and columns of refugees in a country he loved appalled him. Nazi Germany was an evil that it was, he now believed, *my mission to help destroy*.

Embry asked for another month as squadron boss, but was turned down flat. His successor arrived that afternoon. But so too did a signal from Group ordering the squadron to attack German forces advancing through Saint-Omer towards Dunkirk.

That's just as it should be, he thought. He'd been granted one last mission.

'We're coming up to the target area, sir.'

The voice of his navigator, Pilot Officer Tom Whiting, shook Basil Embry from his thoughts.

'Keep your eyes skinned,' he replied as the first ugly black puffs of flak began to explode around them.

Embry pressed himself into the armour plate of his seat and

Copyrighted Material

focused on following the directions from his navigator lying prone in the nose of the Blenheim. The aeroplane bucked a little as the German gunners found their range. Three more anti-aircraft shells blossomed black in his peripheral vision.

'Slightly to starboard . . . hold it . . . bombs . . . gone. Turn on to two hundred and eighty degrees.'

Embry barely had time to respond before the perspex of the cockpit's side window blew in and a rush of cold air punched him in the face. He felt a burning stab of pain in his left leg. Now crowding the aeroplane, the dull thuds of the bursting shells had resolved into sharp cracks. The Blenheim shied to port like a startled horse, then seemed to rear up as if caught squarely by a powerful uppercut. The control column was nearly ripped from his hands as the bomber's nose pitched skywards. Embry tried to push the stick forward to regain control, but got no response. Unable to lower the nose, he cut the power to try to rein her in.

Still staring at the ground from the bomb aimer's position and oblivious to what was happening in the cockpit, Whiting was using frantic hand signals to urge him to turn to starboard.

The intercom was down too, Embry realized. In a desperate effort to alert him to the danger they were in, Embry ripped off his tin hat and hurled it at his crewmate's back. That got his attention. Embry whisked the control column around to no effect and shrugged open-handedly before jabbing at the escape hatch with his finger. As understanding dawned across the navigator's face, the Blenheim's uncontrolled climb finally got the better of her. Unable to maintain sufficient speed for the wings to generate lift, she stalled, the nose dropped, and she slid into a flat spin, pancaking hopelessly towards the ground.

With his right boot, Embry kicked Whiting out of the stricken bomber's escape hatch before hauling himself round to check on his air gunner. Corporal Lang was hunched unconsciously over the controls of his turret. Separated from Lang by a bulkhead and, in such dire circumstances, unable to squeeze through the narrow crawl space connecting the cockpit with the rear fuselage, Embry had no choice but to leave him for dead.

Nothing I can do.

Copyrighted Material

And, now forced on to all fours by the Blenheim's accelerating, terminal descent, Embry crawled to the escape hatch. Diving out headfirst, he counted to three then pulled the ripcord.

A little over two months later, Basil Embry alighted from his train at Ipswich station still wearing clothes he'd bought in Perpignan while waiting for an opportunity to escape occupied France. Thirty of his fellow 107 Squadron officers cheered his arrival then carried him through the blackout to the Swan Hotel. Embry's triumphant return to England after so long on the run had seemed so unlikely.

Pint in hand, the vicar's son from Gloucestershire stood by the fireplace in the saloon bar. His ordeal had left him thin, but the intense gaze from his striking blue eyes was undimmed, and he received his comrades' welcome with warmth and gratitude. The squadron Intelligence Officer appeared to need constant reassurance that Embry was actually there, circling back again and again to shake him by the hand, saying, 'My God, sir, you're back. You're *back*!' The man looked like he was on the verge of tears.

Embry's experience in France had only fuelled his fervour. He had come home with what he described as 'a peculiar kind of loathing' for the Germans, a determination to do whatever it took to take the fight to the enemy, and a conviction that the RAF's war would, in the end, boil down to a battle between aircraft and flak. To win it, he knew he would have to be relentless in his pursuit of the very best men, intelligence, tactics and equipment. And as fond as he was of the Blenheim, he knew its best days were behind it.

Victory in the air would require an aircraft with performance of a very different order. Happily, as Embry held court in the Swan Hotel, nearing completion in a small hangar outside St Albans was the prototype of a machine that would carry four times the bomb load at nearly twice the speed, with enough range to reach targets on the far side of Europe.

Copyrighted Material

Copyrighted Material

PART ONE

1943

Copyrighted Material

'This is not the end. It is not even the beginning of the end, but it is, perhaps, the end of the beginning.'

– Winston Churchill, November 1942

Copyrighted Material

ONE

Wing Commander Hughie Edwards VC was beginning to worry. Skimming along at over 300mph just 50 feet above the ground was hard enough in good conditions. But flying through a Scandinavian snowstorm under darkening skies substantially complicated the task. One of his nine de Havilland Mosquito B.IVs had already been forced to turn back after clipping a wing on a telegraph wire. With luck, though, the grim conditions would at least keep the Luftwaffe on the ground.

Since taking command of a Mosquito squadron Edwards had found himself offering up silent prayers to the crews of slower, more vulnerable aeroplanes. Awarded the Victoria Cross for leading a formation of Blenheims in a heroic attack on the heavily defended port of Bremen in 1941, the Australian pilot knew all about slow and vulnerable. He'd lost a third of his crews that day, but in a Mosquito, during one of his first missions as 105 Squadron boss, he'd somehow been able to shake off an attack by a *dozen* German fighters and make it back across the Channel.

The twin Rolls-Royce Merlins were running sweetly, the grey blur of their three-bladed propellers beating through the flurries. Through the parachute he sat on he could feel the reassuring thrum of the motors resonating through the airframe. Like every pilot, he was acutely attuned to any uncommanded change of pitch, but V for Victor was running on rails.

And yet Edwards couldn't shake his unease. The target today was in Denmark's capital, Copenhagen, and further from home than he'd ever taken the Mosquito before. It was, as one of his pilots had

Copyrighted Material

put it, *a man-sized war-winning job*. They'd trained non-stop for a fortnight to ensure success. But the fuel margins were still exceptionally fine.

The characteristics of a good navigator, Edwards maintained, were *navigation rudiments, native cunning, intuition, quick thinking and, most important of all, the ability to read a map as well*. And despite projecting an air of supreme confidence, Edwards wasn't sure that 'Tubby' Cairns, the navigator sitting alongside him, was completely on top of that last part. As they swept east across flat, featureless fields camouflaged by snow, Edwards couldn't help trying to catch sight of his navigator's maps. At 1625 hours they *should* have been over Denmark's largest island, Zealand, with ten minutes to run into the target, a diesel engine plant in the city centre that was believed to be supplying the Kriegsmarine, Germany's navy, with vital components for its U-boats. But Zealand had yet to make an appearance.

Over his left shoulder, Edwards caught a glimpse of a low road bridge, perhaps as long as 4 or 5 miles, linking two Danish islands.

'What the hell was that?' he barked at Cairns. 'Where *are* we?'

By the time Edwards and his nav had established that it could only have been a crossing nearly 40 miles south of their planned track they were out over the Baltic leaving Denmark in their wake. But at least Edwards now knew exactly where they were. The 105 Squadron boss tipped V for Victor into a sharp left-hand turn before rolling out on a northerly heading. Seven Mosquitos, each carrying four 500lb bombs with fuses ranging from eleven seconds to thirty-six hours to wrong-foot the enemy long after the bomber crews were back on the ground at RAF Marham, followed his lead. As they swept past Møns Klint, the jagged white chalk cliffs guarding Denmark's southeast coast towered 200 feet above them.

On track now. About eight minutes to run.

Calming down, Edwards offered his chastened navigator an olive branch. 'I see your point,' he reassured Cairns, 'you were deceiving the enemy.' It may have been accident rather than design, but if the Germans thought the bombers were heading to the Reich's own Baltic ports, the air defences in the Danish capital might be caught sleeping. 'Good man.' He needed Cairns with his wits about him as they beat low across Køge Bay towards the mouth of Copenhagen's south

Copyrighted Material

harbour, the wide channel of water that would funnel them right into the heart of the city.

With the rest of the formation maintaining a tight close echelon to starboard, Edwards reached forward with his right hand to open the bomb bay doors. As they clamshelled into the slipstream beneath the Mossie's elegantly tapered fuselage, Edwards was distracted by the twinkling bright lights of Malmö, just 10 miles across the water in neutral Sweden, over the head of his navigator. Half an hour behind schedule, the Mosquitos were clinging to the last minutes of twilight.

He forced his attention back on to the bomb run as V for Victor bellowed through the entrance of the harbour. Buildings flashed past beyond the Mosquito's camouflaged wings as he applied a touch of pressure to the control wheel to bring the nose round to follow the canal towards the Burmeister & Wain factory in Christianshavn.

That was when the flak opened up. Heavy and accurate.

But it seemed to disappear almost as soon as it had begun, leaving Edwards able to focus on hitting his target. Slicing through the city centre, the view over the Mosquito's nose matched that of the photographs shown to the crews in briefing. Immediately adjacent to the B&W works was Christians Kirke, its rococo steeple rising over 200 feet above the ground.

Confirmation that he was where he needed to be.

Edwards pressed the bomb release button on the control yoke and called 'bombs gone' before reaching forward to close the bomb bay doors. A few seconds later, his four bombs crashed through the roof of the test sheds. Each Mosquito had been detailed with a different part of the sprawling diesel plant. Behind him, his crews would hit the machine shops, assembly halls and the power station too, streaming in between the facility's two tall chimneys. Flames from the leader's bombs were already licking through the roof by the time the last of the Mosquitos came through.

By now, though, the flak was intense.

Late that January afternoon in 1943, Monica Wichfeld had been enjoying a cigarette in her hotel on Kleinsgard, overlooking St Jørgen's Lake, when, at just after five o'clock, the distant thump of heavy-calibre gunfire rolled across the Danish capital. Then, a faint disturbance

Copyrighted Material

in the air before the thrum of approaching aircraft rapidly crescendoed.

Like a succession of passing racing cars, the intruders swept north across the capital, the snarl of their engines building and receding as they beat past at rooftop height, their progress punctuated by a drumbeat of powerful explosions in their wake. Anti-aircraft artillery erupted from the harbour to the northwest, smudging the sky with ugly puffs of black smoke. A couple of seconds later the sound of exploding shells reached Kleinsgard.

Monica was in Copenhagen to discuss the provision of safe houses with a senior figure in the Resistance. Now, with her suitcase packed with copies of the illegal newspaper *Frit Danmark* – Free Denmark – to distribute as widely as possible once she got home to the large family estate she ran on the southern island of Lolland, she was ready to leave the capital.

Denmark had been under German occupation for nearly three years, but had remained largely untouched by the global struggle for supremacy between the Allied and Axis powers. Scandinavia's southern outpost was presented to the world as Hitler's model protectorate – a possession of the Third Reich afforded a veneer of independence through self-governance. And, by and large, the country had gone along with it. None of this sat at all happily with Monica. Appalled by Denmark's humiliation and passivity, she had helped distribute underground newspapers and raise money for the nascent local Resistance movement in Lolland. But as much as Monica was eager to restore a measure of national self-respect and dignity, she was driven by an altogether more powerful motive. Since the loss of her beloved brother Jack, killed in action in the last months of the Great War, she'd harboured an unbridled hatred of Germany and all things German. She would do all she could to devote herself to seeing Denmark rid of them. With her husband's 3,000-acre estate, Engestofte, at her disposal, she was determined to do more than just deliver papers.

Half an hour after the sound of the bombers' engines vanished into the night, the first of twenty time-fused bombs detonated. And as darkness fell, Monica enjoyed the glow of the fires lighting up the skyline across St Jørgen's Lake. With this act of destruction, she thought,

Copyrighted Material

Copenhagen had come alive. Monica lit a cigarette, more buoyant about the struggle that lay ahead.

Things, she thought, *are really beginning to happen*.

By the time warnings of an incoming air raid reached the National Reporting Centre in Copenhagen at 1710 hours, Hughie Edwards had left the Danish capital behind. Unmolested during the bomb run itself, vigorous anti-aircraft fire had spewed into the air from flak ships moored in the north harbour before his bomb doors were closed. He'd reefed V for Victor into a tight turn to port, figuring that the flak was more likely to be positioned around the city limits. It wasn't enough to stop him catching a chunk of shrapnel in his starboard engine nacelle. Thankfully the damage appeared to be superficial and, from the right-hand seat, Cairns could see the motor was streaming neither smoke nor sparks.

Skimming the city's rooftops in the deepening dusk saved his fellow raiders from the attentions of the German guns. But while speed, darkness and low altitude might have reduced the raiders' risk of being shot down by flak, they were also a lethal combination in their own right.

At 1713 hours, as they passed the town of Holbaek, 20 miles west of Copenhagen, Sergeants James Dawson and Ronald Cox flew into overhead wires that brought their Mosquito crashing to the ground. Had the formation made its egress from Copenhagen half an hour earlier as planned there might have been enough light for them to see and avoid the hazard.

The earlier navigational error also meant that the surviving Mosquitos were now very low on fuel. One of the pilots gasped across the North Sea at 230mph, his engines barely idling. Two others, flying on fumes, put down at RAF Swanton Morley, not believing they had sufficient fuel to reach Marham, just 21 miles further inland. Edwards and Cairns landed at Marham five hours and eight minutes after their departure with just 15 gallons of fuel in the tanks – little more than five minutes' flying time. The last crew to make it as far as Norfolk, Sergeant Richard Clare and Flying Officer Edward Doyle, were killed when, starved of petrol, their engines failed. Attempting a forced

Copyrighted Material

landing without power in a blacked-out countryside, they hit a barrage balloon cable and crashed into a tree.

Burmeister & Wain, though, was reported to be still burning twenty-four hours later. And while it had come at a cost to Edwards's crews, the raid had achieved its objective in spectacular fashion. It had also underlined that, while the Mosquito *could* hit so distant a target, there were some serious challenges and very fine margins involved in doing so.

'Production of diesel engines', confirmed a report from Stockholm the next morning, 'was at a standstill.'

This was great and heartening stuff, thought Edwards. He deserved the satisfaction. The Burmeister & Wain raid was the revered Australian's last op as boss of a Mosquito squadron, but he, more than anyone, had been responsible for the Mosquito's now burgeoning reputation. And no one was more acutely aware of just how hard-won it had been.

When Hughie Edwards had taken command of 105 Squadron in July the previous year – one of around 30,000 Antipodeans who served as aircrew during the war – there had been concern that the Mosquito was not delivering on its potential. The widespread introduction of the Luftwaffe's new Focke-Wulf Fw 190 meant that the unarmed Mosquito's speed advantage at altitude was no longer decisive.

The squadron tried polishing one of their nineteen Mossies to gain a few extra miles per hour. Edwards then rejected a plan to fit it with rear-firing defensive guns for fear the additional weight would shave a few precious miles an hour off the Mossie's top speed. The idea of hiding one or two Mosquito fighters, heavily armed with cannon and machine guns, inside the unarmed Mosquito bomber formations was also mooted, along with dressing 105's bombers in a Fighter Command paint scheme to warn off predators. None were pursued. And yet mounting Mosquito losses were becoming a cause for concern.

We have to do something, realized Edwards, and he made it his mission *to kill off this policy of high-flying intruder raids by day*. In successfully doing so, he established new tactics that ensured the advantage swung back towards the Mosquito. Going in at low level, where the Mossie still enjoyed a meaningful speed advantage over the Fw 190s, was, even in daylight, *a fair bet*, thought Edwards. But to further tilt the

Copyrighted Material

odds in his crews' favour, he had something else in mind. If 105 hit their targets at dusk, he figured, they could then *withdraw under the cover of darkness*.

The first dusk attacks were launched against Osnabrück and Münster on 9 September 1942. Before the end of the month, the existence of de Havilland's high-speed bomber was revealed to the British public for the first time when, on 25 September, the BBC reported that four 105 Squadron Mosquitos had successfully carried out a low-level pinpoint raid against the Gestapo headquarters in Oslo.

'NAZIS STUNG BY "MOSQUITOES"' read the headline in *The Times*, along with the first official photograph of the aeroplane released by the Air Ministry.

The Mosquito never looked back. Yet this remarkable machine had very nearly been strangled at birth.

Copyrighted Material

TWO

The Royal Air Force owed Geoffrey de Havilland something of a debt for its continued existence. Created in 1918 from the Royal Flying Corps and Royal Naval Air Service, the RAF was the world's first independent air force, but the end of the First World War threatened it with redundancy. By the winter of 1919 its manpower had collapsed from nearly a quarter of a million to just 28,000. It was in danger of being absorbed back into the Army and Royal Navy. The Chief of the Air Staff, Hugh 'Boom' Trenchard, had other ideas, however. Backed by the then Secretary of State for War and Air, Winston Churchill, and in the teeth of opposition from its older siblings, the fledgling service was granted a year-long stay of execution in which to consolidate and demonstrate its validity. Trouble in East Africa gave Trenchard his opportunity in the shape of Mohammed Abdullah Hassan – the 'Mad Mullah'.

An unsuccessful near twenty-year campaign to pacify Hassan's Dervish insurgency in British Somaliland had already cost taxpayers millions of pounds. Trenchard argued that air power could bring the resistance to a swift conclusion. The 'Z Unit' of a dozen de Havilland DH.9As, dispatched from the UK aboard HMS *Ark Royal*, was in theatre and ready for action by the middle of January 1920. Three weeks later, the RAF bombing campaign, supported by the Army's Camel Corps, had driven Hassan into exile in Ethiopia, bringing the war to an end. But it was the bargain secured in blood and treasure of the RAF's short campaign that was so compelling. Z Unit hadn't suffered a single combat loss. The cost to the taxpayer was just £77,000, and the value to Trenchard incalculable. Churchill handed leadership of the much

Copyrighted Material

larger job of imperial policing in Iraq to the Air Force, and thereafter the whole Middle East. Despite continued sniping from the Army and Navy, the independence of the RAF was secure.

Not that this won de Havilland any favours.

'You really think you know enough about it to build a flying machine?'

It was a legitimate enough question for the old man to ask of his grandson before parting with a £1,000 legacy. But twenty-six-year-old Geoffrey de Havilland's mind was made up. Inspired as a child by hot-air balloons and Jules Verne's bestselling aerial adventure *The Clipper of the Clouds*, de Havilland became infatuated with reports coming back from France of the Wright Brothers' flying displays in Le Mans. It was the summer of 1908. And after a lifetime spent tinkering with all things mechanical and electrical with his late brother, Ivon, all previous ambitions to build cars and motorcycles were pushed aside. The aeroplane, thought de Havilland – although he'd never actually seen one fly – *was the machine to which I was prepared to give my life*.

'Yes,' he told his grandfather, 'I certainly do, and I've an overwhelming desire to fly.'

Two years later, de Havilland took to the sky in his second design, becoming one of the last self-taught pilots in the UK. His progress through the ranks of Britain's small but burgeoning aviation establishment was rapid and in 1911 he joined the Army Balloon Factory at Farnborough – soon to become the Royal Aircraft Factory – as their first fixed-wing specialist and test pilot. Alongside de Havilland himself, the War Office also acquired its very first aeroplane in the shape of the machine he had designed and built. Thousands more would soon follow.

Feeling stifled by government work, de Havilland joined manufacturer Airco – the Aircraft Manufacturing Company Ltd – as their chief designer months before the outbreak of the First World War. A series of designs culminated in the DH.4, a fast, single-engined reconnaissance bomber that Trenchard, in a letter from the frontline, described as 'first rate', going on to enthuse about how 'for a large machine it is extremely handy to fly'. The DH.4's aerodynamic qualities were, said the National Physical Laboratory, 'unequalled'. A total of 1,450 were built in the UK and a further 3,220 in the United States

Copyrighted Material

for the US Army Air Service. And by the war's end nearly 20 per cent of the 20,000-plus aircraft on charge with the RAF were de Havilland designs, largely the DH.4 and its successor, the DH.9.

De Havilland's contribution to the First World War was, by any measure, a substantial and successful one. Twenty years later, however, the picture looked very different. There was still a case to be made for de Havilland being the single most significant aircraft manufacturer in the country. Not only had nearly every pilot in the RAF learnt to fly in one of more than 9,000 DH.82 Tiger Moth biplanes that would ultimately be built, but the Hamilton propellers built under licence by the company were used across the RAF frontline by the Hurricane, Spitfire, Defiant, Battle, Lysander, Whitley, Hampden, Wellington, Sunderland and more. De Havilland was the largest producer of propellers in the world, but on the day war was declared in 1939 they had no frontline fighter or bomber design of their own.

After setting up his own company in 1920, following the demise of Airco, Geoffrey de Havilland quickly became frustrated by the bureaucracy, moving goalposts and meddling attendant with trying to build combat aircraft in peacetime. *More trouble than they're worth*, DH concluded of military projects after an attempt to adapt a successful three-engined wooden airliner as a bomber was derailed by a late demand to build it out of metal and change the position of the engines. Instead, the company excelled by focusing its efforts on the civilian market, *building aeroplanes that were of some use*, reckoned DH, that *depended on real merit to get orders*.

Through the twenties and thirties, the family of Moth light aircraft designed and built by de Havilland's company surfed a wave of interest in private flying. Meanwhile, the DH.84 Dragon, designed and built in four months for the owner of a bus company who wanted to set up an unsubsidized airline between Romford and Paris without 'high-falutin' pilots and toffee-nosed hostesses', led to the Dragon Rapide, perhaps the most successful British small airliner of the interwar years. But by far the most spectacular of these civilian endeavours was the record-breaking DH.88 Comet Racer.

After the announcement of the MacRobertson England to Australia International Air Race in the autumn of 1934, DH gathered his

Copyrighted Material

top team to his office in the company's Hatfield headquarters and told them: 'You know, we can't stand by and let this race be won without any British effort.' And with that, the Comet was born.

Key to successful commercial designs were the clean lines that allowed them to slip through the air as efficiently as possible using the least amount of power and fuel. This would also be required of a racer designed to maintain a speed of 200mph or more over stages of 2,600 miles. An advertisement was placed in the aviation press inviting orders for 'a limited number of this long-distance type of racing aircraft'. Although no other details were shared, the first Comet was ordered at the end of February. De Havilland had seven months to ensure that the clean, twin-engined monoplane design that emerged from their drawing boards was ready to compete. Despite the aircraft incorporating a number of features included in a British aircraft for the first time, flight testing that would normally span months was compressed into a few short weeks. Orders for two more DH.88s had followed and all three were delivered in time to start the race from Mildenhall to Melbourne in October. DH reckoned the effort to prepare them had left all involved *half dead from exhaustion*, but it proved worthwhile.

Seventy hours, fifty-four minutes and eighteen seconds after taking off from Suffolk, one of the three Comets, *Grosvenor House*, flown by Charles Scott and Tom Campbell Black, won the 11,300-mile race to the other side of the world. Of their marathon flight, Scott said, 'It was lousy – and that's praising it.'

By contrast, the runner-up was an American-built Douglas DC-2 airliner capable of carrying fourteen passengers in relative comfort. There was acute disappointment back at Hatfield that they'd had no choice but to enter the race with a small two-seat aeroplane designed specifically for the job. Letters were written to the Air Ministry urging them to support the building of a prototype high-speed transport to compete with the likes of Douglas and Boeing because 'one by one the big European air transport companies are turning to American equipment'.

By the time a commitment was eventually dragged out of the Ministry in early 1936 to cover *half* the cost of building two of de Havilland's

Copyrighted Material

elegant DH.91 Albatross airliners, alarm over Nazi Germany was intensifying. Britain was on the cusp of full-scale rearmament and, as much as the focus had been on civilian work since the end of the last war, DH was determined that his company would play its part in any future conflict.

In the summer of 1935, de Havilland had produced a rough feasibility study that considered the potential of the Comet as a high-speed unarmed bomber capable of carrying a 1,000lb bomb load over a distance of 1,000 miles. While the scheme was never pursued, it did at least provide a glimpse of de Havilland's direction of travel. The problem was that their preferred destination was not entirely the same as that of their customer.

The following year, the RAF issued a requirement for a twin-engined bomber, armed with defensive gun turrets front and rear, with 'the highest possible cruising speed'. After examining the possibility of using their Albatross airliner as the basis of a response, de Havilland concluded that the specification could not be met. The RAF's formula would inevitably result in an aeroplane that was underpowered and overweight. So, instead, thoughts at Hatfield turned to the success of the DH.4 during the First World War for inspiration. By removing the gun turrets and reducing the crew to two, it would be possible to build a streamlined, lightweight bomber, unencumbered by defensive weapons, that used high speed alone to stay out of trouble. Armed with drawings and calculations outlining estimated performance, DH and his chief engineer presented their proposal to officials at the Air Ministry in October 1938.

'Forget it,' they were told. 'You people haven't produced a war machine for years.' The civil servants suggested de Havilland ease themselves back into military work by designing a wing for another company's aeroplane. And they thought they had just the ticket. 'It's called "The Ape".'

Disconsolate, the pair drove back from London past newspaper billboards promising 'CRISIS – LATEST' following Germany's occupation of Czechoslovakia's Sudetenland in the wake of the Munich Conference. But before they reached Hatfield, DH's mood had changed. Turning to his colleague, he told him: 'We'll do it anyway.'

Copyrighted* Material

Immediately after Germany's smash-and-grab in Czechoslovakia, Monica Wichfeld wrote to her son warning of when 'the day comes when they want Denmark!'

Born in London into an aristocratic Anglo-Irish family, she had always seemed too large a personality to be constrained by the prospect of provincial life in County Fermanagh. It was a view apparently shared by the two schools that expelled her. Now forty-eight years old and elegantly dressed in designer clothes, the dusting of grey hair around her temples had done nothing to diminish Monica's full-throttle approach to life.

Marriage to Jørgen de Wichfeld, a Danish diplomat she met in London's fashionable Café de Paris, had provided her with a route out of rural Ireland. Throughout the twenties and thirties, Monica enjoyed life within a glamorous social circle that included the likes of Noël Coward, actress Tallulah Bankhead, *Daily Express* owner Lord Beaverbrook and Clementine Churchill, Winston's wife. When Jørgen's spendthrift approach to money and a slump in Danish agriculture combined to squeeze the Wichfeld family's finances, Monica maintained their lifestyle with hitherto untapped entrepreneurial flair. A costume jewellery business, 'No-crax' – a nail protection product – and a fragrance created by Coco Chanel labelled 'Monica 55' were all successful.

She had brought the same dynamism to running her husband's estate. Engestofte, the forty-room manor house at its heart, lay at the end of a long drive lined with elms and lime trees. Staff cottages, a pair of churches, a Chinese pavilion over a freshwater spring and the property's 2-mile-long lake were all part of the package.

When war was declared she was living at her mother's house on the Italian Riviera. After a brief visit to Denmark in the summer of 1939, she was convinced that when she next returned her adopted country would be under German occupation. She had no intention of meekly accepting Germany's belligerence, however. And, after travelling on to London, she readily agreed to her friend Max Beaverbrook's invitation to make herself useful as an intelligence asset on her return to Mussolini's Italy.

'Keep in touch,' he suggested. 'Occasional reports . . . on the situation might be useful.'

Copyrighted Material

A year later, while Monica sent reports via America on Italy's slide towards the Axis, her friend was appointed to the role of Minister of Aircraft Production by Winston Churchill. And, from this unassailably powerful new position, Beaverbrook was doing his best to kill off de Havilland's plan to build a fast, unarmed bomber once and for all.

While the Air Ministry had been sceptical about de Havilland's ability to deliver on their ambitious performance claims, many in the higher echelons of the RAF were doubtful about the very notion of an unarmed bomber. But not *all*.

Critical support for de Havilland's proposal was provided by Air Marshal Wilfrid Freeman. Since 1938, Freeman had been responsible for all research, development and production of new aircraft for the RAF. As a young pilot, though, he'd commanded squadrons of de Havilland DH.4s in the Royal Flying Corps. He'd experienced first-hand the merits of a high-speed bomber that could hold its own against enemy fighters. And, like DH, who first met Freeman at RFC HQ in France during the First World War, he could see a place for such a machine alongside the fighters and heavy bombers that were the focus of the RAF's urgent rearmament. He unpicked the logic of a proposal by the Assistant Chief of the Air Staff to saddle de Havilland's design with machine gun turrets, telling him 'you want a bomber so fast that it will have the legs of an enemy fighter, but you decide it will not be fast enough and will therefore make it slower by adding defensive armament'.

And he got round the stubborn resistance of the head of Bomber Command by using a separate RAF requirement for a high-altitude reconnaissance aircraft to place an order for fifty Mosquitos straight off de Havilland's drawing boards. From the outset it was understood that the sleek design, if successful, had the potential to be developed into separate reconnaissance, bomber and fighter versions.

De Havilland was on its way. Until, that is, Wilfrid Freeman's department was brought under Max Beaverbrook's control. Demanding complete focus on the production of a 'Big Five' of core aircraft – the Spitfire, Hurricane, Wellington, Whitley and Blenheim – the new Minister of Aircraft Production told Freeman to cancel the order.

But he failed to put it in writing.

Copyrighted Material

And so while de Havilland were briefly diverted by an order to build 20lb bomb racks for Tiger Moths to be used against German lines in the event of an invasion, Freeman, without *formal* instruction from his boss, allowed work on their unarmed bomber to continue. The Tommy gun in the corner of the Air Marshal's office was, it was said, to be used on Beaverbrook if he made any further attempt to pull the plug. To prevent any meddling with the design, Freeman told DH that he alone was to be the ultimate authority on any decisions relating to the specifications of the firm's new aircraft. 'Speed of production', he stressed, 'was to be of first importance.'

The birthplace of de Havilland's new aeroplane in the Hertfordshire village of London Colney could hardly have been more steeped in English history. Built on the site of an old manor house recorded in the Domesday Book, Salisbury Hall, the elegant red-brick mansion that replaced it, was commissioned by a banker to King Henry VIII before later being used for trysts between Charles II and his mistress Nell Gwyn. When Winston Churchill's mother moved in, in 1905, the actress's ghost was said still to walk the halls of the house. By the 1930s, when Sir Nigel Gresley, the designer of *Mallard*, the world's fastest steam engine, took up residence, the ghostly creaking from Gwyn's four-poster bed was still reckoned to keep people awake at night. A stuffed pike, fished from the moat surrounding the house by a young Winston Churchill, was on display in a glass case above the downstairs loo.

But for R. E. Bishop, de Havilland's chief designer, Salisbury Hall's most important feature was of more practical concern: the large ballroom would serve as a studio for his draughtsmen as they fleshed out the design for the new speed bomber. Away from the company's headquarters in nearby Hatfield, their work was not only safe from Air Ministry interference, but also the attentions of the Luftwaffe.

Sustained by cups of tea using fresh milk taken directly from cows in the field next door, the design team had a mock-up of DH's new aeroplane hanging from the ceiling of the kitchen by Christmas of 1939. Drawing on the same lifelong enthusiasm for entomology that had inspired de Havilland's family of 'Moth' light aircraft, DH christened it the Mosquito.

Copyrighted Material

Around Whitehall, it was disparaged as 'Freeman's Folly'. And only the Royal Navy, who had a requirement for a fast target tug to help train their anti-aircraft gunners, seemed to have any great enthusiasm for it. But through the spring and summer of 1940, as Britain and the Commonwealth stood alone against Germany, the prototype de Havilland Mosquito took shape in a small hangar built behind Salisbury Hall. And, on the face of it at least, it appeared to be the very antithesis of an environment from which you might expect a state-of-the-art warplane to emerge.

In place of the tang and clang of metalwork there was the warmer, organic bouquet of a timber yard and the softer sounds of planes and sandpaper. Sawdust instead of sparks. The men in brown coats were carpenters as much as engineers, the detailed production drawings guiding them specifying not just size, shape and position, but also the required orientation of the grain of each component. Because, against all expectations and contemporary wisdom, Britain's most ambitious new warplane was to be built of wood. Wilfrid Freeman had demanded 'speed of production', and de Havilland estimated that if they used wood it would be ready to go into production a year earlier than if they chose to build it from metal. That fact alone had been critical to ensure the Mosquito's survival. But, as a construction material, wood had a lot more going for it than that.

Strong in both compression and tension, wood had been humankind's most effective weapon since *Homo sapiens* first emerged in East Africa 300,000 years ago. While the Industrial Revolution had seemed to signal the permanent ascendancy of metal as a material, it also gave rise to the mechanical tooling required to exploit wood's potential as never before. Metal enabled the mass production of the rigging blocks required for the Royal Navy's rearmament in the early nineteenth century to be accomplished by ten men rather than thousands.

The arrival of the ironclad era didn't alter the fact that, weight for weight, wood was as stiff as metal. There would always be a ceiling on the size of a wooden component, however. Wood could not be cast or forged. A single block could never exceed the volume of the tree it came from. Most critical of all, though, a metal didn't contain the

Copyrighted Material

anisotropy that characterizes wood – that is, the difference in its properties across or along the grain. Unlike metal, the orientation of a piece of wood mattered. But plywood put paid to that.

The invention of the rotary lathe by Alfred Nobel's father, Immanuel, in 1851 made it possible. Nobel's machine worked by turning a log into something akin to a toilet roll of thin wooden veneer. By then sandwiching together sheets of the resulting veneer with each layer's grain at right angles to those above and below, anisotropy ceased to be an issue. The construction of monocoque fuselages in which the outer skin was self-supporting and integral to the aeroplane's structure became a reality.

Although pioneered by the French aviator Armand Deperdussin in 1911, plywood's suitability as a material for building modern combat aircraft stemmed from the order for 3,400 Airco DH.4 biplanes for the US Army Air Service in 1917. Construction of each of the fast bombers that had first inspired Geoffrey de Havilland's thoughts of the Mosquito required 500 square feet of plywood. Such was its importance to the nation's defence, the US government sponsored the Forest Service's Forest Products Laboratory to conduct research into its physical and mechanical properties and the glue required to stick it all together.

Up until that point most US wood glue was made using gelatin extracted from hides, hooves, bones and vegetables. But in search of a more water-resistant adhesive, FPL concentrated its research on casein glue made from cheese and vinegar, the basic recipe for which had been around since ancient times. Their new formula, capable of surviving twenty-four hours in boiling water followed by ten days in a tank at room temperature, was immediately put to work sticking together the Army's new fleet of DH.4s.

Alongside their research on glue, the FPL studied the wood itself, instigating standard measurements to record the results of their experiments into joining, cutting, layering, bending, twisting, shrinking, tension, strength and stiffness, developing techniques that saw them introduce improvements to the DH.4's wing that were adopted by de Havilland back at Hatfield.

Such was their success that by 1936, de Havilland had opted to build a four-engined, twenty-two-seat airliner, the DH.91 Albatross,

Copyrighted Material

entirely out of wood and plywood. And, four years later, the Mosquito. In the case of the latter, particularly, there were compelling reasons for doing so.

As the Albatross illustrated so beautifully, de Havilland had become the world leader in the construction of advanced wooden aircraft. Geoffrey de Havilland thought it was probably the largest high-performance wooden airliner ever made. The seamless plywood surface of its monocoque shell, unblemished by panel gaps and rivets, lowered drag and increased speed. The Mosquito would share its predecessor's slipperiness. Built in two separate halves, the fuselage was then fitted with all the necessary wiring and plumbing before being glued together like a clamshell. To add structural strength, the port and starboard wings were constructed as a single entity before the whole tip-to-tip plank was slotted into the fuselage behind the cockpit like the crossmember of a crucifix.

At a time when the Air Ministry had shown no appetite at all for the project, DH had been able to argue that building a prototype would make no demand on 'strategic materials', principally aluminium, all stocks of which, he understood, were already allocated.

Behind the sandbags that surrounded Salisbury Hall and its outbuildings, de Havilland's hive of draughtsmen, engineers, artisans and craftsmen worked through the spring and summer of 1940 in great secrecy. When one of their number contracted appendicitis the doctor who examined him was brought to the compound wearing a blindfold. By the end of October, work was finished on a machine that already had the look of a thoroughbred.

On 3 November, after being partially dismantled and loaded on to an articulated lorry, the prototype was driven to de Havilland's HQ at Hatfield. Three weeks later, W4050 was ready to fly.

Finally shorn of the tarpaulins deployed to hide her from prying eyes on the ground, the Mosquito was an imposing sight, at once sleek and muscular. She appeared, thought DH, *to be largely made up of engines and propellers*. All the same, he was nervous. He found himself walking to and from his car, aimlessly opening and shutting the door as he tried to put out of his mind all the things that could go wrong on a first flight. It had been just eleven months since work had started on

Copyrighted Material

the first Mosquito. And in the cockpit was his son, Geoffrey, the company's chief test pilot, dressed for the occasion in a stylishly tailored lounge suit and bright socks.

But DH needn't have worried. When, on an overcast autumn day, Geoffrey landed after a trouble-free half-hour flight, it was already clear that the team from Salisbury Hall had built a very special aeroplane.

A single year separated the first flight of the RAF's last biplane fighter, the Gloster Gladiator, in 1934 and that of the Hawker Hurricane. Six years on, the Mosquito represented a further generational leap in performance and potential. Never was the old aviation adage that if it looks good it flies good more true than of the streamlined and beautifully proportioned de Havilland fighter-bomber. The *rightness* of the design reflected its performance in the air. Marrying two of the superlative Rolls-Royce Merlin engines that powered the Spitfire, Hurricane and Lancaster with the smallest useful airframe resulted in a machine that enjoyed power in abundance. Burying the radiators in the wing roots between the engine nacelles and fuselage to reduce drag and a few extra pounds of thrust gained from carefully designed exhausts enhanced that power, as US Army Air Corps General Hap Arnold was to discover when he visited Hatfield in April 1941. Geoffrey de Havilland, now supremely confident in the Mosquito's ability, flew a spectacular aerobatic display, wheeling around the sky above the de Havilland factory in thrilling fashion. At its conclusion, he dived towards the airfield, his engines snarling at full power, before making a low, fast run across the watching crowd then pulling the aeroplane into a rocket-like vertical climb to 3,000 feet.

As a finale, he did it all over again using just one engine.

If Hap Arnold had felt at all jaded after turning in at two a.m. the night before following dinner with Winston Churchill, it failed to dampen the impression made by de Havilland's yellow-painted prototype. Eighteen different British designs had been put through their paces for the General. *Some*, he thought, *very impressive, some not so hot*. The Mosquito, though, was deemed 'outstanding'. The USAAC chief returned to Washington along with a full set of plans for the aircraft, knowing that de Havilland's masterpiece could outperform anything in the US arsenal.

Copyrighted Material

With the potential of their speed bomber now clear, orders began to pour in for fighter, bomber and reconnaissance variants. Demand from the frontline put paid to the Royal Navy's plan to use the Mosquito as a target tug, though, as de Havilland embarked on building the most powerful fleet of wooden war machines since the heyday of fighting sail.

Copyrighted Material

THREE

NO LONGER WELCOME in Italy now that Mussolini had thrown in his lot with Hitler, Monica and her family were forced to leave. After securing exit permits in Rome, they travelled north by train through Germany towards Denmark. While her husband, Jørgen, dealt with sub-machine gun-carrying uniformed customs officials, Monica's head remained buried in a red dust-jacketed copy of *Into Battle*, a collection of Winston Churchill's wartime speeches published earlier in the year. It was as close as she could bring herself to keeping her promise to Jørgen not to be 'unnecessarily provocative'. The book's title neatly summed up her mood, though. After travelling through Berlin, where Monica made notes she thought might be helpful to the British, the family spent the night in Warnemünde, the northern port where they'd catch the ferry back to Denmark. Despite nearly being killed when their accommodation was hit by an RAF bomb that failed to explode, both Monica and her twenty-year-old daughter, Varinka – Inkie to her family – were pleased to note that British bombers were already hitting the German mainland. It was, thought Inkie, *quite an experience*.

Mother and daughter were cut from the same cloth. After a peripatetic upper-class childhood that had left her never really feeling Danish, Inkie had wept with rage on hearing news that Germany had stolen her country. And, after moving back into Engestofte, both women were appalled by the well-fed smugness of many of their fellow landowners in Lolland. There was money to be made from selling meat and dairy produce to the occupiers, not least the 'fat pigs' bred specially to cater to German appetites and for

Copyrighted Material

which a premium was paid. But to Monica and her daughter, this felt like collaboration.

'You will discover patriotism only when your stomach suddenly feels empty,' she told one of them. Monica and Inkie were agreed: *we must do something to fight the Germans*.

A shared love of Proust convinced a Communist writer renting accommodation on the Engestofte estate that the aristocratic Monica couldn't be all bad. Reassured, the tenant provided his landlady with an introduction to the nascent local Resistance movement. At first, Monica and Inkie's contribution was limited to distributing copies of *Frit Danmark* and raising money from wealthy friends to support families struggling after losing a breadwinner to arrest or escape because of the Resistance. Both were hungry to do more.

In the New Year, her efforts would eventually lead her and her daughter to an organization that, if its letterhead was to be believed, was called the Inter-Services Research Bureau. To those with sufficient levels of security clearance, it was the Special Operations Executive. To its recruits, it was often known simply as 'The Racket'. And humiliation in Sweden, a country that at its closest point was separated from Denmark by just 2½ miles of water, had played a part in its inception.

Fond of dark glasses, a Homburg hat, cigarette holder and an ever-present red carnation in his buttonhole, Major Laurence Grand was reckoned to be at best eccentric and possibly mad. He was also responsible for the Secret Intelligence Service's D Section. 'D for destruction,' he would explain. His department, although small, had people spread throughout Europe and as far afield as Baghdad, Cairo and Constantinople. Grand's remit was direct action rather than the gathering of intelligence; 'to plan, prepare and when necessary carry out sabotage and other clandestine operations'. The trouble was, as one senior Foreign Office official put it, Grand 'was almost always wrong', concluding that 'to pit such a man against the German General Staff and the German Military Intelligence Service is like arranging an attack on a Panzer Division by an actor mounted on a donkey'.

When, in April 1940, Grand's man in Stockholm was caught with

Copyrighted Material

53kg of gelignite in his flat intending to disrupt German efforts to acquire Swedish iron ore, it only seemed to confirm it. D Section's would-be saboteur was sentenced to eight years' hard labour, and Britain's embarrassed Envoy to Sweden, Sir Victor Mallet, complained to London that 'our sleuths seem to be thoroughly bad at their job'.

Grand was clearly not the man for the job, but the debacle in Sweden highlighted a more fundamental problem: sabotage and destruction was simply at odds with the inconspicuous, often slow accretion of intelligence.

What was needed, argued Hugh Dalton, Churchill's Minister for Economic Warfare, was a new secret agency, independent of both the War Office and SIS – which fell under Foreign Office control – 'to coordinate, inspire, control and assist nationals of the oppressed countries who must themselves be the direct participants'. Pointing to the IRA, Chinese resistance to Japanese occupation and even the Spanish irregulars who, with Wellington's support, ejected Napoleon from Spain as examples, Dalton outlined some of the methods they might employ, including 'industrial and military sabotage, labour agitation and strikes, continuous propaganda, terrorist acts against traitors and German leaders, boycotts and riots'.

Two weeks later, on 19 April 1940, Dalton got what he wanted when, in perhaps his last significant political act before terminal illness forced his retirement from the War Cabinet, Prime Minister Neville Chamberlain signed the charter that ushered the Special Operations Executive into existence: an amalgamation of SIS's beleaguered D Section; MI(R), a branch of military intelligence dedicated to research that served a similar function to Q's department of James Bond legend; and a shadowy propaganda unit run jointly by the Foreign Office and Ministry of Information known only as 'The Department in Electra House'.

Dalton himself was given control of the new organization. According to its charter, it was 'to coordinate all action by way of subversion and sabotage, against the enemy overseas'. Churchill put it more succinctly when, as his Minister for Economic Warfare made to leave the room, the PM simply urged him to 'set Europe ablaze!'

Copyrighted Material

In Denmark, the job of making that happen was given to a mild-mannered twenty-eight-year-old part-time naval officer.

On 7 April 1940, Lieutenant Commander Ralph Hollingworth RNVR travelled to Funen, Denmark's third largest island, to check on mine-sweeping operations.

Events then unfolded quickly.

First it was the presence of the Luftwaffe circling overhead in violation of Denmark's neutrality; then Hollingworth was told of reports of 'considerable activity' in the Belts, the channels of water that separated Denmark's Jutland peninsula from the archipelago that made up the rest of the country. Travelling east to investigate, he recorded the passage of sixty German ships through the Great Belt – the Storebælt in Danish – on 8 April, and sent a coded message to the Consulate in Copenhagen warning that an invasion of Denmark by Germany appeared to be imminent.

At 0415 hours the following morning, the launch of Operation WESERÜBUNG SÜD saw the Wehrmacht's 11th Motorized Rifle Brigade and 170th Infantry cross the border into their northern neighbour. From the outset it was clear that the small Danish Army of just 15,000 largely untrained recruits was no match for the might of the German Army.

While in his teens, Ralph Hollingworth had jumped on a ferry to the continent as soon as he'd left school in Leicester in 1928 and had spent the next three years living in France and Germany before settling in Denmark. After nine years in Copenhagen, he was supplementing the money he earned from working in a bicycle shop by teaching English in the evenings. But as a member of the Royal Naval Volunteer Reserve he was drafted into the British Legation when war was declared to serve as consular shipping adviser, before joining Naval Intelligence to report on German naval movements.

Now, with the German invasion in full flow, Hollingworth helped staff at the Vice Consulate on Funen burn all the classified material before phoning his friend, the city's Assistant Chief of Police, to check on the progress of the German assault on Odense.

'Well, they are in the next room,' the policeman told him, 'but I won't tell them you're here.'

Copyrighted Material

After German troops were put ashore unopposed on both the east and west coast of Funen by the Kriegsmarine, it had required no more than a solitary motorcycle patrol to bring the island under complete German control.

By the time Hollingworth took his seat on the 11.35 train out of Odense to return to the capital, Denmark's defeat was total.

The irony was that Hitler never really wanted to invade and occupy Denmark at all. His northern neighbour was nothing more than a necessary stepping stone from which he could launch WESERÜBUNG NORD, the invasion of Norway that would provide access to Atlantic ports and year-round access to Swedish iron ore via the ice-free Norwegian port of Narvik.

Now, under German 'protection', the country's neutrality would continue, as would the government's responsibility for internal affairs. In a somewhat surprising move, the Army and Navy were allowed to remain in business while handing over whatever materiel and real estate the Germans demanded. And the King and the Cabinet were forced to submit to German censorship of newspapers and radio and oversight of the country's diplomatic affairs, the latter requiring the Danish to sever all relations with the Allies. For all the talk of neutrality, Denmark had effectively been subsumed into the Axis.

With their host country's submission, Hollingworth and the rest of the staff of the British Legation in Copenhagen were no longer welcome. Still basking in the success of their swift and largely bloodless invasion, and eager to flaunt their civility and magnanimity, the Germans agreed to lay on a special sealed train to carry the British diplomats, safe and unmolested, through Denmark, Germany, Belgium and the Netherlands to Calais, then for passage home. As the train slowed to travel through the town of Fredericia on the east coast of Jutland, a waiting Danish Army Intelligence Officer threw a rolled-up newspaper in through an open window. Inside it were documents giving details of German troop dispositions throughout Denmark. It was the first indication that the invaders' decision to allow the Danish military to remain on active duty might prove costly.

Copyrighted Material