# THE WILLS WILLS



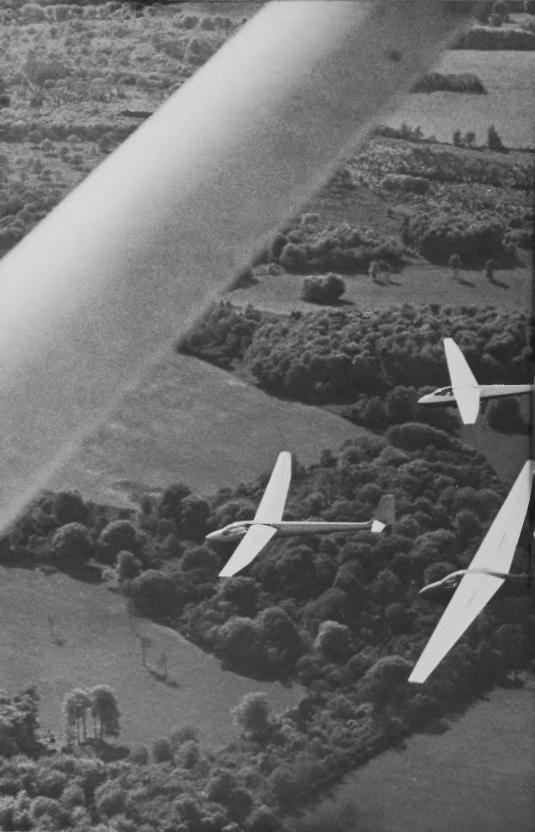
# BY THE SAME AUTHOR Where No Birds Fly

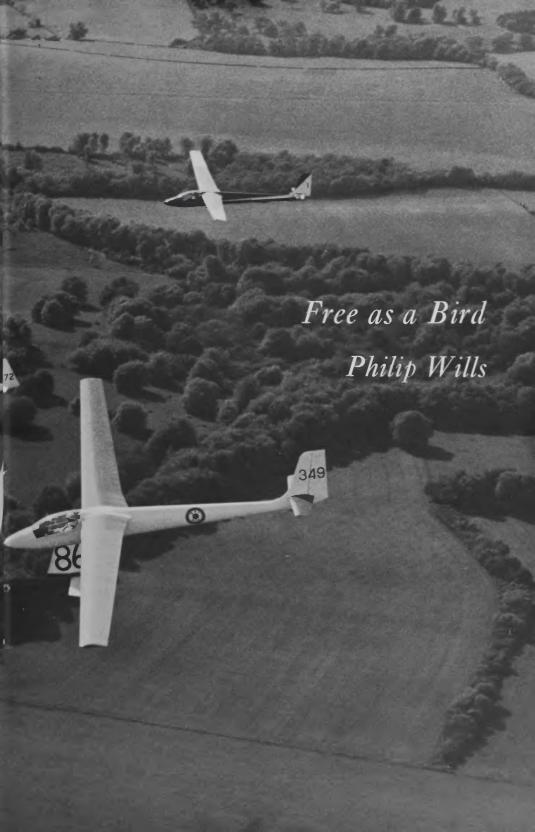
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### To

The Igguldens of Australia
The Georgesons of New Zealand
The Laschs of South Africa
The Orsis of Italy
all fellow Romantics of the Air

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Many of the flight descriptions, and some of the other material, have appeared before in various journals: Country Life, The Times, Guardian, Flight, and Sailplane & Gliding. I am grateful to the Secretary of the British Air Line Pilots Association; to Mr Walter Tye; the Editors of the Daily Telegraph, Evening News, London, and New Scientist (whose article first appeared on 14 August, 1969), for the courtesy of allowing me to reproduce their copyright material.

'Altitude in Undress' was published in *The Beauty of Gliding* (Max Parrish), which has been out of print for some years. I have included it in Chapter 9 because it rounds off this chapter.

Rika Harwood has combed out many mistakes, but memory being what it is I will have made others, for which I remain responsible.

I also have to thank Alex Aldott for permission to use one of his many extraordinarily beautiful colour photographs for the dust-jacket of this book.

P.W.

# A summer day

Summer is the season for gliding. Many people still have the idea that gliding depends on hills for upcurrents, but this is not so. The main (though not the only) source of energy in the rising air used on most cross-country flight comes from the sun. Warm air is lighter than cold, as anyone who has made a hot-air balloon will know. When the sun shines on a dappled earth, ploughed fields and the roofs of towns, the tarmac of an airfield runway, the slope of a hill facing the sun, these and a hundred other 'thermal sources' will get warmer than surrounding green fields, forests and lakes, and the air above them will tend to rise. In certain weather conditions, this rising air will entrain further volumes of the surrounding atmosphere, and coalesce into vast rising bubbles that can go on climbing until, as they cool, they form the cumulus 'woolpack' clouds of summer and sometimes develop even further into the towering cumulo-nimbus clouds of the thunderstorm, rising 30,000 ft or more into the sky.

It took a surprisingly long time for man to discover this daily cycle of the dynamic air. How often have you noticed the clear blue sky of an early summer's day? Then, as the sun climbs and the earth begins to warm up, comes the first hint of a fluffy cloud; later on the sky is dappled with bulging pincushions of white cumulus; finally, as the sun sets, these clouds begin to topple and die, until with the last light the sky is again a clear and possibly dusty blue. During the night, the dust that has been carried up during the day by the marching fountains of rising air slowly settles, and so by dawn the air is again clear and visibility unhindered to the horizon. The same sequence is to be repeated.

If you are wise you will jump into your car and get to your gliding club as quickly as you can, because in such weather the queue of members eager to fly starts early. As soon as you arrive you get your name on the list, and then join with your fellow-members in the 2 PROLOGUE

hundred and one tasks involved in getting the aircraft into the air. For in gliding nearly all the work is carried out voluntarily by club-members; this is part of the fun and keeps the cost of flying to the minimum.

The gliders have first to be assembled (unless the club has enough hangar space to store them fully rigged) and then checked for air-worthiness. The tow-cars, launching winches or towing aero-planes have to be serviced and checked; pilots and drivers allotted parachutes and barographs (for recording heights achieved during flights) installed. The gliders have to be towed to the launch point, the winches towed to the downwind end of the site, and the winch wire run out for perhaps 3,000 ft to be connected to the nose of the glider.

At last your turn arrives. Parachute on, barograph ticking, you are strapped in, check your controls, shut the cockpit cover, check the launch-wire on the hook. A batman at your wingtip signals to the distant winch, the wire tightens. 'All-out'; with a jerk your aircraft trundles forward, you ease back the stick, and in a steepening climb you leave the earth. Just before you started you looked around the local sky, and to one side you saw a couple of sailplanes circling serenely. They had found a rising thermal and, like the rooks, had put their machines into a circle in order to stay within it. They are marking the course for you.

At 1,000 ft on the wire you are nearly over the launching winch, and you pull the release knob. As the wire falls away, your glider jumps up as if for joy. Instantly you turn towards your lucky friends, who by now have climbed well above you. But as you reach the air beneath them your aircraft suddenly comes alive. The wings tremble, the controls twitch under your hands, the needle of the rate-of-climb indicator (variometer) moves from a steady three down to zero, up a bit, down, up again. The starboard wing has lifted, so the rising air is probably to that side. You thrust it down and turn into the lift. The variometer needle, after various hiccups, settles to a quiet two up and, as you circle round, the earth starts to recede below you. You have made contact, you have latched on to the lift, you are away, with no sound about you other than the rush of the wind over the wings of your aircraft.

You are now no longer a man; you are an intellectually advanced

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bird. You have not the instincts of a bird (although as the years go by you take an increasing number of decisions instinctively), but you have a considerably better intelligence. To keep aloft you have to continue to find rising air, and you know a good deal about the natural laws that create it. In order to avoid the trouble and expense of an away landing and a retrieve by road, you have decided to fly a triangle of, say, 100 miles, round turning points you have already declared before you took off. The first thermal takes you, in circling flight, up to the fluffy base of a shallow cumulus cloud. You are still not far from your take-off point, and it is not permissible to go into a cloud so near to home, for if this were done by everyone the collision risk would be too high. So you straighten up on course and set off in the direction of your first turning point. At 60 knots, the gliding site is left behind you, and the green and brown chequered countryside slides quietly past beneath. Ahead, below, and somewhat to starboard, is a small country town; slightly to port, and above, is another cumulus. Over the first, or under the second, is likely to be another column of lift. Which to try?

The problem is solved by the sight of two buzzards peacefully circling, ahead and slightly to port. You fly over and join them in their gyrations, and immediately the variometer swings to 'climb'. The three birds swing round in space amicably together, then once more at cloudbase you straighten up on course and leave the pair to their meditations. And so the flight continues. It is a summer's day. You are not trying to race, to break records, to take risks; you are just enjoying yourself. The glory of the earth and the freedom of the air are, for two or three hours, all yours. Towards evening, as the rising thermals carry up myriads of insects from the fields below, they become full of darting swallows, not circling for pleasure like the soaring buzzards or seagulls, but jerking to and fro with beaks agape to pick up their suppers on the wing.

The evening clouds are building up to their climactic height, before the setting sun drains their lives out of them and they topple and die. If you felt like it, you could switch on your gyroscope and circle up inside, in milky silence, to 10,000 ft or more. But, five miles ahead, the club-house on the edge of the airfield glints pinkly in the setting sun. The faithful two-seater is still taking off, circling and landing with its pupil aboard. One or two sailplanes are approaching to land;

4 PROLOGUE

others are being towed across the field towards the hangar. Tea and buns call, and the chatter of exchanged experiences of the day. You put the nose of your sailplane down and strike for home. The airfield boundary sweeps below, you pull out your airbrakes, the grass beneath leaps up, the skid kisses the field; a bump or two, and the life fades out of the aircraft. You are down, once more an earthbound gregarious biped. One wing slowly drops and touches the ground. One of your friends comes up. 'Nice fly?' A typically British understatement.

9 9 9

You have just had a day of freedom in excelsis: yours has been the sky and all that therein is. It will seem in retrospect as harmless and as natural a glory as man could aspire to. This book will try to show how that freedom has been won and retained and to fore-shadow the work and struggle that lies ahead to preserve it. For if it is taken for granted, it will stage by stage be worn away and like the evening cumulus will die.

The first six chapters of this book in the main attempt to show the work and the philosophy behind it, and from Chapter 7 onwards I try to paint the picture of what it is all about: why we have done, and must continue to do this basically dull work, so that the air can remain available to us within the limits of other and more severely practical demands on it. The philosophy roots back to one statement made long ago: Man does not live by bread alone.

So if some of my readers find that parts of the first six chapters are hard going, be very glad that others are prepared to carry the burden.

### PART ONE

## 000

# Getting airborne

# The Pioneers

# A short history of British gliding

For the first several hundred years of the history of gliding, the design of motorless aircraft was attempted simply because these were, in the absence of any conceivable engine, the only possible devices through which the secrets of controlled flight by human beings might be discovered. In this chapter I do not propose to record any of the doings in this field. For, as one of the most unexpected outcomes of the first World War, gliding was reborn in the shape which developed it as it is today, as the greatest sport of all time, involving the use of the energy stored in the atmosphere to maintain sustained flight.

Although, in the modern jargon, gliding produces a considerable 'fallout' in the fields of meteorology, aerodynamics, structures and materials, and even sociology, it is now regarded all over the world as a sport—and possibly the only true aerial sport—and it is the development of gliding in this country in this sense that I propose to cover briefly.

In 1922 world records stood at six minutes' duration, 6 miles distance, and 1,000 ft climb. In 1972 duration records have been abandoned as mere pole-squatting, having been raised in 1952 to 56 hr 15 min; the world distance record is 633 miles (over 1,000 km),\* and the world height record 46,266 ft, while speed records round triangular courses, of 100, 300 and 500 km, exceed 65 mph. During the 1965 World Gliding Championships, held at RAF South Cerney, 86 pilots from 28 nations flew 48,500 miles over six competition days. While they were flying about half the air traffic over the British Isles consisted of gliders, and there were nearly three times

<sup>•</sup> At the time of going to press, a flight of over 1400 kms has been made and is awaiting homologation.

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